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ABSTRACT

This bibliography focuses on the training needs of adults and the incorporation of the most effective training delivery systems for adults into job training programs. It includes citations exploring current training practices, methods, and philosophies in both the private sector and the educational system; how each system can learn from the experiences of the other to improve its training programs; the importance of cooperation among all training providers; and what is on the horizon for training in the future. Research on adult learning also is included. Citations include administrative material, books, dissertations, information analyses, journal articles, opinion papers, research reports, and teaching guides. Materials for inclusion in the bibliography were located through the Florida Educational Information Service (FEIS). FEIS conducted (1) searches of computerized retrieval systems--specifically the ERIC (Educational Resources Information Center), ABI/INFORM, Dissertations Abstracts International, and MANAGEMENT CONTENTS databases on DIALOG; and (2) a manual search of current journals. Each reference contains title, date, author, annotation, format, and availability. Three journal articles are also reprinted: "30 Things We Know for Sure about Adult Learning" (Ron and Susan Zemke); "Technology Tackles the Training Dilemma" (Randy Ross); and "Design and Delivery of Customized Training Programs for New and Expanding Business and Industry" (Jolyne Ghanatabadi and Collette Saylor). (KC)

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Training Delivery Systems for Adult Learners

A Bibliography

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(904) 488-0405

Training Delivery Systems for Adult Learners

A Bibliography

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Project Coordinator
Rebecca Augustyniak
Center for Instructional Development and Services
Florida State University
Tallahassee

Project Manager
Kathleen Coleman
Center for Instructional Development and Services
Florida State University
Tallahassee

Editor
Lloyd Gold
Center for Instructional Development and Services
Florida State University
Tallahassee

Designer
Robert Celander
Center for Instructional Development and Services
Florida State University
Tallahassee

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Introduction

Most adult workers will require job-related training or retraining at least several times during their working lives. Currently a great deal of this training is provided in and by the private sector, although the educational system—especially at the community college level—is becoming increasingly involved. This involvement will need to increase if the training needs of the work force are to be met. The most effective training delivery systems for adults must be identified and incorporated into job-training programs. This is the focus of this bibliography, which includes citations exploring current training practices, methods, and philosophies in both the private sector and the educational system; how each system can learn from the experiences of the other to improve its training program(s); the importance of cooperation among all training providers; and what is on the horizon for training in the future. Research on adult learning is also included: specifically, how adults learn, the most effective strategies for facilitating adult learning, and how to incorporate this knowledge in the design and implementation of training for adults.

Training is a vast topic. This bibliography is not intended to be a comprehensive examination of it, but rather a selective look at one aspect—delivering training to adults.

Citations include administrative material, books, dissertations, information analyses, journal articles, opinion papers, research reports, and teaching guides.

Materials for inclusion in this bibliography were located through the Florida Educational Information Service (FEIS). FEIS conducted (1) searches of computerized retrieval systems (specifically, the ERIC [Educational Resources Information Center], ABI/INFORM,* Dissertation Abstracts International, and MANAGEMENT CONTENTS® data bases on DIALOG) and (2) a manual search of current journals, from which three articles were selected to be reprinted here.

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NOTE: The American Society for Training and Development, underwritten by the U.S. Department of Labor, is currently at work on a research project, "Best Practices: What Works in Training and Development." Four books will be written and published, based on research findings. For more information contact the ASTD National Affairs Office at (703) 683-8154.

CLASSICS

30 Things We Know for Sure About Adult Learning

By Ron and Susan Zemke

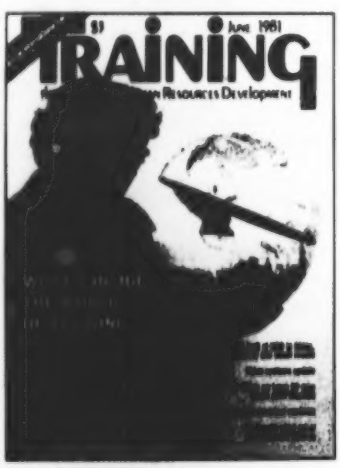
We don't know a lot about the mechanisms of adult learning. At least, not in the "What are the minimum—necessary and sufficient—conditions for effecting a permanent change in an adult's behavior?" sense of knowing.

In that, we're not alone. Malcolm Knowles came to much the same conclusion in *The Adult Learner: A Neglected Species*. Eight years ago, he equated his efforts to summarize what was then known about adult learning to a trip up the Amazon: "It is a strange world that we are going to explore together, with lush growth of flora and fauna with exotic names (including fossils of extinct species) and teeming with savage tribes in raging battle. I have just made a casing-the-joint trip up the river myself, and I can tell you that my head is reeling." Today, Knowles says, "The river is much tamer. We are beginning to understand what we do that works and why it works." But as we listen, we have the distinct impression that what our point man Knowles sees as tame travel can still be white-water rapids for the rest of us.

While there are hundreds of books and articles offering tips and tricks for teaching adults, the bulk of that knowledge is derived from three relatively limited spheres. The first is "My life and times in teaching," wherein one teacher/trainer of adults shares his or her career's accumulation of secrets with others. Though intriguing and interesting, this literature focuses more on teacher survival than anything else. While we learn much about living, we learn relatively little about learning.

The second common source is the "Why adults decide to study" research. Here we learn some interesting, even fascinating, things about the conditions and incidents that motivate adults to engage in a "focused learning effort." But in most of this research, the adult seems assumed to be a learning machine who, once switched on, vacuums up knowledge and skill. It is more indicative than instructive, more suggestive than substantive. A cynic would call this body of knowledge about adult learning a form of market research.

1981



In deciding which articles to include in this special issue, this one from June 1981 was a gimme. We've had more reprint requests for it than for any other article TRAINING has ever printed.—Editors

The third source is extrapolation from theory—both adult learning theory and research—derived from work with children and non-human subjects. The adult learning theories in question are really holistic treatments of human nature: the Carl Rogers/Abraham Maslow sort of theory from which we can only infer, or guess at, rules of practice. "Would you rather learn from a lecture or a book?" or "On your own or with direction?" are interesting questions, but ones that beg the issue of results or learning outcomes. A trainee may prefer listening to lectures but learn best by practice and application exercises.

The non-adult theory and research is a broad lot—everything from child development studies to pigeon training. The tendency seems to be to draw guidance from the B.F. Skinner/behavior modification/programmed instruction and the Albert Bandura/behavior modeling/social learning schools of thought. While both schools are generating research and results, they are still shorter on proven practices than pontification and speculation. No single theory, or set of theories, seems to have an armlock on understanding adults or helping us work effectively and efficiently with them.

Still and all, from a variety of sources there emerges a body of fairly reliable knowledge about adult learning—arbitrarily, 30 points that lend themselves to three basic divisions:

- Things we know about adult learners and their motivation.
- Things we know about designing

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curricula for adults.

- Things we know about working with adults in the classroom.

These aren't be-all, end-all categories. They overlap more than just a little bit. But they help us understand what we are learning from others about adult learning.

Motivation to Learn

Adult learners can't be threatened, coerced or tricked into learning something new. Birch rods and gold stars have minimum impact. Adults *can* be ordered into a classroom and prodded into a seat, but they *cannot* be forced to learn. Though trainers are often faced with adults who have been sent to training, there are some insights to be garnered from the research on adults who seek out a structured learning experience on their own. It's something we all do at least twice a year, the research says. We begin our running tally from this base camp.

1 Adults seek out learning experiences in order to cope with specific life-change events. Marriage, divorce, a new job, a promotion, being fired, retiring, losing a loved one and moving to a new city are examples.

2 The more life-change events an adult encounters, the more likely he or she is to seek out learning opportunities. Just as stress increases as life-change events accumulate, the motivation to cope with change through engagement in a learning experience increases. Since the people who most frequently seek out learning opportunities are people who have the most years of education, it is reasonable to guess that for many of us learning is a coping response to significant change.

3 The learning experiences adults seek out on their own are directly related—at least in their own perceptions—to the life-change events that triggered the seeking. Therefore, if 80 percent of the change being encountered is work-related, then 80 percent of the learning experiences sought should be work-related.

4 Adults are generally willing to engage in learning experiences before, after or even during the actual life-change event. Once convinced that the change is a certainty, adults will engage in any learning that promises to help them cope with the transition.

5 Although adults have been found to engage in learning for a variety of reasons—job advancement, pleasure, love of learning and so on—it is equally true that for most adults learning is not its own reward. Adults who are motivated to seek out a learning experience do so primarily (80-90 percent of the time) because they have a use for the knowledge or skill being sought. Learning is a means to an end, not an end in itself.

There seem to be 'teachable moments' in the lives of adults.

6 Increasing or maintaining one's sense of self-esteem and pleasure are strong secondary motivators for engaging in learning experiences. Having a new skill or extending and enriching current knowledge can be both, depending on the individual's personal perceptions.

The major contributors to what we know about adult motivation to learn have been Allen Tough, Carol Aslanian and Henry Brickell, Kjell Rubenson and Harry L. Miller. One implication of their findings for the trainer is that there seem to be "teachable moments" in the lives of adults. Their existence impacts the planning and scheduling of training. As a recent study by the management development group of one large manufacturer concluded, "Newly promoted supervisors and managers must receive training as nearly concurrent with promotions and changes in responsibilities as possible. The longer such training is delayed, the less impact it appears to have on actual job performance."

Curriculum Design

One developing research-based concept that seems likely to have an impact on our view and practice of adult training and development is the concept of "fluid" versus "crystallized" intelligence. R.B. Catell's research on lifelong intellectual development suggests there are two distinct kinds of intelligence that show distinct patterns of age-related development but function in a complementary fashion. Fluid intellect tends to be what we once called innate intelligence; fluid intelligence has to do with the ability to store strings of numbers and facts in short-term memory, react quickly, see spatial relations and do abstract reasoning. Crystallized intelligence is the part of intellectual functioning we have always taken to be a product of knowledge acquisition and experience. It is related to vocabulary, general information, conceptual knowledge, judgment and concrete reasoning.

Historically, many societies have equated youth with the ability to insatiably acquire information, and age with the ability to wisely use information. Catell's research suggests this is true—that wisdom is, in fact, a separate intellectual function that develops as we grow older. Which leads to some curriculum development implications of this two-faceted intellect concept:

7 Adult learners tend to be less interested in, and enthralled by, survey courses. They tend to prefer single-concept, single-theory courses that focus heavily on the application of the concept to relevant problems. This tendency increases with age.

8 Adults need to be able to integrate new ideas with what they already know if they are going to keep—and use—the new information.

9 Information that conflicts sharply with what is already held to be true, and thus forces a re-evaluation of the old material, is integrated more slowly.

10 Information that has little "conceptual overlap" with what is already known is acquired slowly.

11 Fast-paced, complex or unusual learning tasks interfere with the learning of the concepts or data they are intended to teach or illustrate.

12 Adults tend to compensate for being slower in some psychomotor learning tasks by being more accurate

and making fewer trial-and-error ventures.

13 Adults tend to take errors personally and are more likely to let them affect self-esteem. Therefore, they tend to apply tried-and-true solutions and take fewer risks. There is even evidence that adults will misinterpret feedback and "mistake" errors for positive confirmation.

Dr. K. Patricia Cross, author of *Adults As Learners*, sees four global implications for designing adult curriculum in Catell's work. "First, the presentation of new information should be meaningful, and it should include aids that help the learner organize it and relate it to previously stored information. Second, it should be presented at a pace that permits mastery. Third, presentation of one idea at a time and minimization of competing intellectual demands should aid comprehension. Finally, frequent summarization should facilitate retention and recall."

A second neat new idea that influences curriculum design is the concept of adult developmental stages. Jean Piaget, Lawrence Kohlberg and others have seen children as passing through phases and stages for some time. It is only recently, thanks to Gail Sheehy, Roger Gould, Daniel Levinson and others, that we've come to acknowledge that there are also adult growth stages. A subset of this concept is the idea that not only do adults' needs and interests continually change, but their values also continue to grow and change. For that insight, we can thank Clare W. Graves and his pioneering work in value analysis. The implications, though still formative:

14 The curriculum designer must know whether the concepts and ideas will be in concert or in conflict with learner and organizational values. As trainers at AT&T have learned, moving from a service to a sales philosophy requires more than a change in words and titles. It requires a change in the way people think and value.

15 Programs need to be designed to accept viewpoints from people in different life stages and with different value "sets."

16 A concept needs to be "anchored" or explained from more than one value set and appeal to more than one developmental life stage.

A final set of curriculum-design guides comes from the research on learning media preference. Researchers have for years been asking students if they preferred learning XYZ from a book, a movie, an experience or another person. Though there are limitations to the value of this sort of data, enough of it is accumulating to be of some help to the design effort.

17 Adults prefer self-directed and self-designed learning projects 7 to 1 over group-learning experiences led by a professional. Furthermore, the adult learner often selects more than one medium for the design. Reading and talking to a qualified peer are frequently cited as good resources. The desire to control pace and start/stop time strongly affects the self-directed preference.

18 Non-human media such as books, programmed instruction and television have become popular in recent years. One piece of research found them very influential in the way adults plan self-directed learning projects.

19 Regardless of media, straightforward how-to is the preferred content orientation. As many as 80 percent of the polled adults in one study cited the need for applications and how-to information as the primary motivation for undertaking a learning project.

20 Self-direction does *not* mean isolation. In fact, studies of self-directed learning show self-directed projects involve an average of 10 other people as resources, guides, encouragers and the like. The incompetence or inadequacy of these same people is often rated as a primary frustration. But even for the self-professed, self-directed learner, lectures and short seminars get positive ratings, especially when these events give the learner face-to-face, one-to-one access to an expert.

Apparently, the adult learner is a very efficiency-minded individual. Allen Tough suggests that the typical adult learner asks "What is the cheapest, easiest, fastest way for me to learn to do *that?*" and then proceeds independently along this self-determined route. An obvious tip for the trainer is that the adult trainee has to have a hand in shaping the curriculum of the program.

In the Classroom

We seem to know the least about helping the adult maximize the classroom experience. There are master performers in our trade who gladly pass along their favorite tips and tricks, but as Marshall McLuhan observed, "We don't know who discovered water but we can be pretty sure it wasn't a fish." In other words, the master performer is often a poor judge of how one becomes a master performer. There certainly are volumes of opinion and suggestion, but by and large they rest more on theory than hard data. Ironically, some of the strongest data comes from survey studies of what turns off adults in the classroom. Likewise, there is a nicely developing body of literature on what makes for good and bad meetings that has implications for training:

21 The learning environment must be physically and psychologically comfortable. Adults report that long lectures, periods of interminable sitting and the absence of practice opportunities are high on the irritation scale.

22 Adults have something real to lose in a classroom situation. Self-esteem and ego are on the line when they are asked to risk trying a new behavior in front of peers and cohorts. Bad experiences in traditional education, feelings about authority and the preoccupation with events outside the classroom all affect in-class experience. These and other influencing factors are carried into class with the learners as surely as are their gold Cross pens and lined yellow pads.

23 Adults have expectations, and it is critical to take time up front to clarify and articulate *all* expectations before getting into content. Both trainees and the instructor/facilitator need to state their expectations. When they are at variance, the problem should be acknowledged and a resolution negotiated. In any case, the instructor can assume responsibility only for his

or her own expectations, not for those of trainees.

24 Adults bring a great deal of life experience into the classroom, an invaluable asset to be acknowledged, tapped and used. Adults can learn well—and much—from dialogue with respected peers.

25 Instructors who have a tendency to hold forth rather than facilitate can hold that tendency in check—or compensate for it—by concentrating on the use of open-ended questions to draw out relevant trainee knowledge and experience.

26 New knowledge has to be integrated with previous knowledge; that means active learner participation. Since only the learners can tell us how the new fits or fails to fit with the old, we have to ask them. Just as the learner is dependent on us for confirming feedback on skill practice, we are dependent on the learner for feedback about our curriculum and in-class performance.

27 The key to the instructor role is control. The instructor must balance the presentation of new material, debate and discussion, sharing of relevant trainee experiences and the clock. Ironically, we seem best able to establish control when we risk giving it up. When we shelve our egos and stifle the tendency to be threatened by challenge to our plans and methods, we gain the kind of facilitative control we seem to need to effect adult learning.

28 The instructor has to protect minority opinion, keep disagreements civil and unheated, make connections between various opinions and ideas, and keep reminding the group of the variety of potential solutions to the problem. Just as in a good problem-solving meeting, the instructor is less advocate than orchestrator.

29 Integration of new knowledge and skill requires transition time and focused effort. Working on applications to specific back-on-the-job problems helps with the transfer. Action plans, accountability strategies and follow-up after training all increase the likelihood of that transfer. Involving the trainees' supervisor in pre- and post-course activities helps with both in-class focus and transfer.

30 Learning and teaching theories function better as a resource than as a Rosetta stone. The four currently influential theories—humanistic, behavioral, cognitive and developmental—all offer valuable guidance when matched with an appropriate learning task. A skill-training task can draw much from the behavioral approach, for example, while personal growth-centered subjects seem to draw gainfully from humanistic concepts. The trainer of adults needs to take an eclectic rather than a single theory-based approach to developing strategies and procedures. [7]

Ron Zemke *is senior editor of TRAINING.*
Susan Zemke *is currently the manager of training consulting services for First Bank System, Minneapolis, MN.*

Technology Tackles The Training Dilemma

Computers and interactive-video systems are changing the way American business copes with training

BY RANDY ROSS

TRAINING HAS been a problem for businesses since business began. In the earliest days, people learned from one-on-one instruction; craftsmen served apprenticeships and the children of the wealthy learned essential skills from private tutors. Head-to-head training is still probably the most effective method ever developed, but it's useless for teaching large numbers of students. When the Industrial Revolution created a need for an educated work force, schooling came to the masses in classrooms governed by a new type of educator—bespectacled Miss Crabtrees wielding chalk in one hand and a hickory switch in the other. Such classes could handle large numbers of students, but quality suffered because Miss Crabtree had to slow down lessons to accommodate the weaker students.

At last technology is providing solutions to the training dilemma, with methods that don't compromise quality for quantity. New methods rely on "interactive" technologies that adjust to the individual student, just as an attentive tutor would. And they're fast. Experts claim that computer-based training and interactive video can cut training time in half.

Both computer-based training and interactive video rely on computer technology to gear training to students' needs. For instance, a worker learning how to repair computer equipment may be presented with a lesson followed by a quiz. An incorrect answer on the quiz cues the computer program to send him to a remedial section that helps him find the correct answer. However, people who understand the material can race through from start to finish at a faster pace. Such learning programs are interactive because a student's responses determine the sequence of the training interactions. Also, workers can tackle training at any time, as long as a personal computer or interactive-video monitor are at the ready.

When large companies need to reach many employees scattered across the country, teleconferencing and business-owned TV networks are rapidly becoming the method of choice. Private broadcasts let a company's best instructor reach all the pupils at the same time (see "Business TV Becomes Big Business," May 1988).

These advanced training technologies come not a moment too soon. Faced with increasing international competition, businesses need well-trained workers now more than ever, especially businesses that depend on complicated and often confusing technologies. What's more, in this cost-sensitive era when companies must get by with slim staffs, training can play an essential role in getting the most from the remaining workers.

The need for training will only intensify. Business and industry is changing so fast that, among today's workers who make it through the year 2000, about 75 percent of them will need retraining. Young people now entering the work force will change occupations about four times during their careers, and at least two of those occupations don't exist yet, according to the *Training and Development Journal*. Combine a shrinking pool of entry-level workers with the 23 million American adults who are considered functionally illiterate, and it's clear that more corporations will offer basic education in the workplace.

Already, U.S. businesses spend about $30 billion on education and training each year, according to an estimate from the American Society for Training and Development. Training expenditures should increase 5 percent per year for the next five years, predicts Stuart

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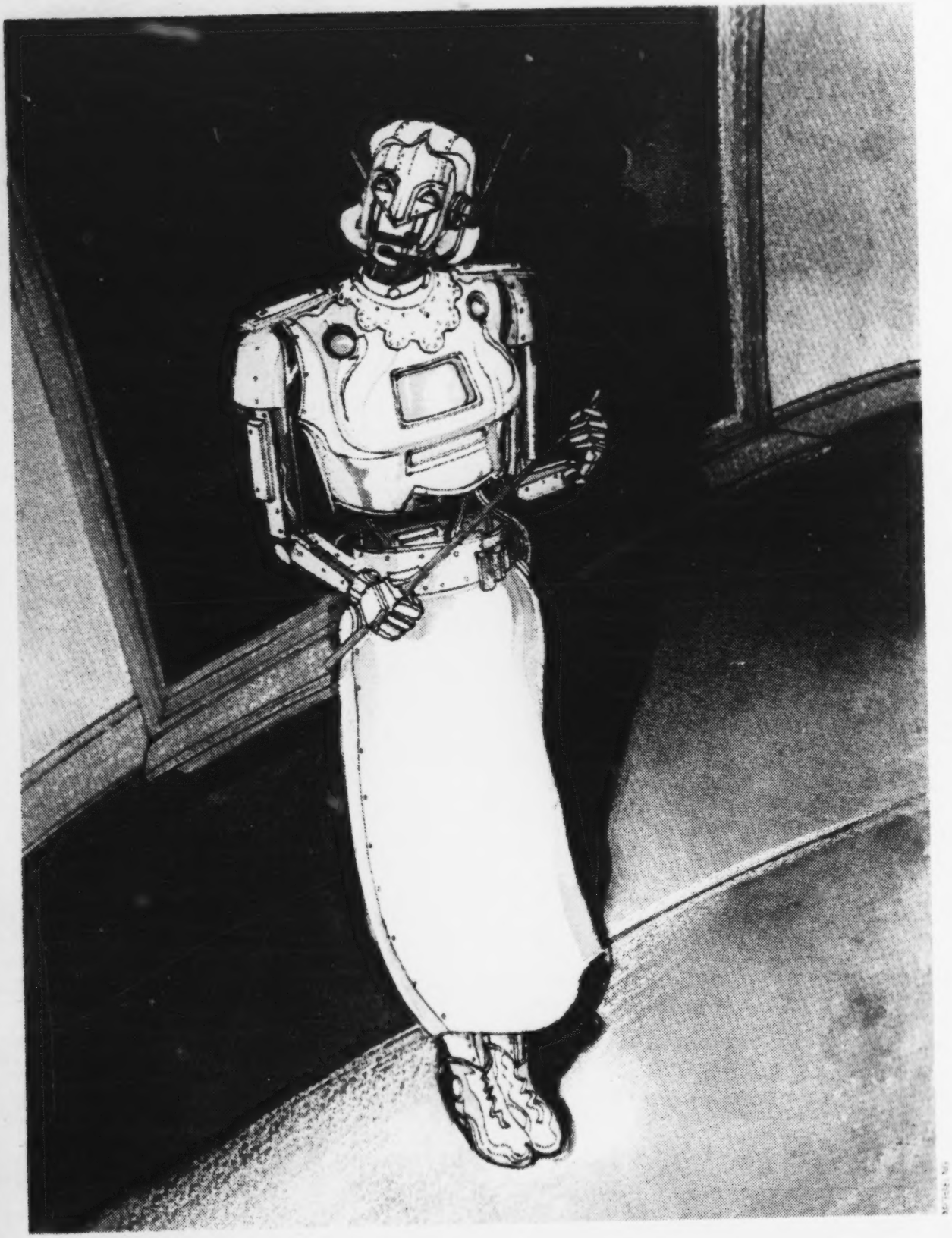


Krasny, president of California-based SK&A Research.

Those training dollars pay for a range of approaches—no-tech methods such as seminars and workbooks; low-tech techniques, including videotape and film; and high-tech alternatives such as interactive computer software and laser-disc systems.

Among the high-tech methods, computer-based training—interactive systems consisting of a computer and training software—accounts for a whopping 30 percent of the corporate training dollar, Krasny says. Interactive-video systems, which use a computer, video-disc player, and a 12-inch laser disc, now take only about a 2 percent slice, but are growing. By 1992, interactive video will cut into demand for instructors and videotape, and account for about 8 percent of the training market, according to Krasny.

Similarly, teleconferencing, which transmits lessons to many remote sites simultaneously, accounts for about 2 percent of corporate training expenses. Krasny expects that figure to double to 4 percent over the next four years. By that time, even more advanced training technologies should be in place. Systems being developed by such heavyweight researchers as General Electric and Sony Corp. will use compact discs with digitized images to give workers access to large databases.

Even though machines may never match the love Miss Crabtree put into her lessons, high-tech training methods handle many tasks more efficiently. A 1984 study conducted by IBM showed interactive video to be about three times more effective at teaching than an instructor, and consultants claim that computer-based training teaches one-third faster than do standard, instructor-led classes.

Another benefit of machine instruction is that it increases one-on-one interaction. The oft-quoted axiom holds that we recall 25 percent of what we hear, 45 percent of what we hear and see, and 70 percent of what we do. Interactive video and computer-based training force students to participate, which can be a feat in itself. "In first grade, people learn how to get by without paying attention," notes Gloria Gery, author of ***Making CBT Happen*** (the "CBT" stands for computer-based training).

Other advantages of high-tech teaching include consistency, efficiency, and economies of scale. "Trainers are human, and have good days and bad days," says Thomas Reeves, assistant professor of instructional technology at the University of Georgia. A machine that delivers a prerecorded lesson has no such variation—management can be sure that each employee receives the same information every time. In addition, by eliminating tangents, interactive technology can reduce class time by one-third, says Ruth Clark, a California-based training consultant.

Further, students can save their companies time and money by using self-paced instruction that lets them skip lessons they already know and focus on unfamiliar material. Faster learners get back on the job sooner; slower learners can redo a lesson until they get it right, without appearing incompetent in front of peers or wasting class time.

Even though interactive video is dwarfed by the number of computer-based training systems installed, it represents an up-and-coming training method. The technology uses a video disc read by a laser, similar to audio compact discs that play music, but packed with images and controlled by a microcomputer. A student uses a keyboard to respond to questions, options, or problems presented by the program on the disc.

The major benefit of interactive video is its ability to provide television-like, full-motion pictures. These are hard to beat when teaching behaviors, such as

how to act on a sales call, or for demonstrating hands-on skills that are difficult or dangerous to undertake in real life. Video simulations are used to teach everything from how to handle a nuclear-power-plant disaster to emergency medical care.

However, the high cost of hardware and video production typically limit interactive video to organizations with deep pockets, such as governments and large corporations. "If you're not training [at least] a thousand people, I'm not sure you can justify [customized] interactive video," says Charles Hall, sales manager for Interactive Medical Communications of Waltham, Mass. Interactive-video hardware can add about $4,500 to the cost of a personal computer, or total about $9,450 for an integrated system such as the IBM InfoWindow. Major hardware suppliers include IBM, Sony, and Matrox Electronic Systems Ltd. of Dorval, Quebec. Custom-made interactive-video software can cost about $200,000 to $450,000, according to Richard Michaels, vice president of Learncom, a company in Cambridge, Mass., that makes training software.

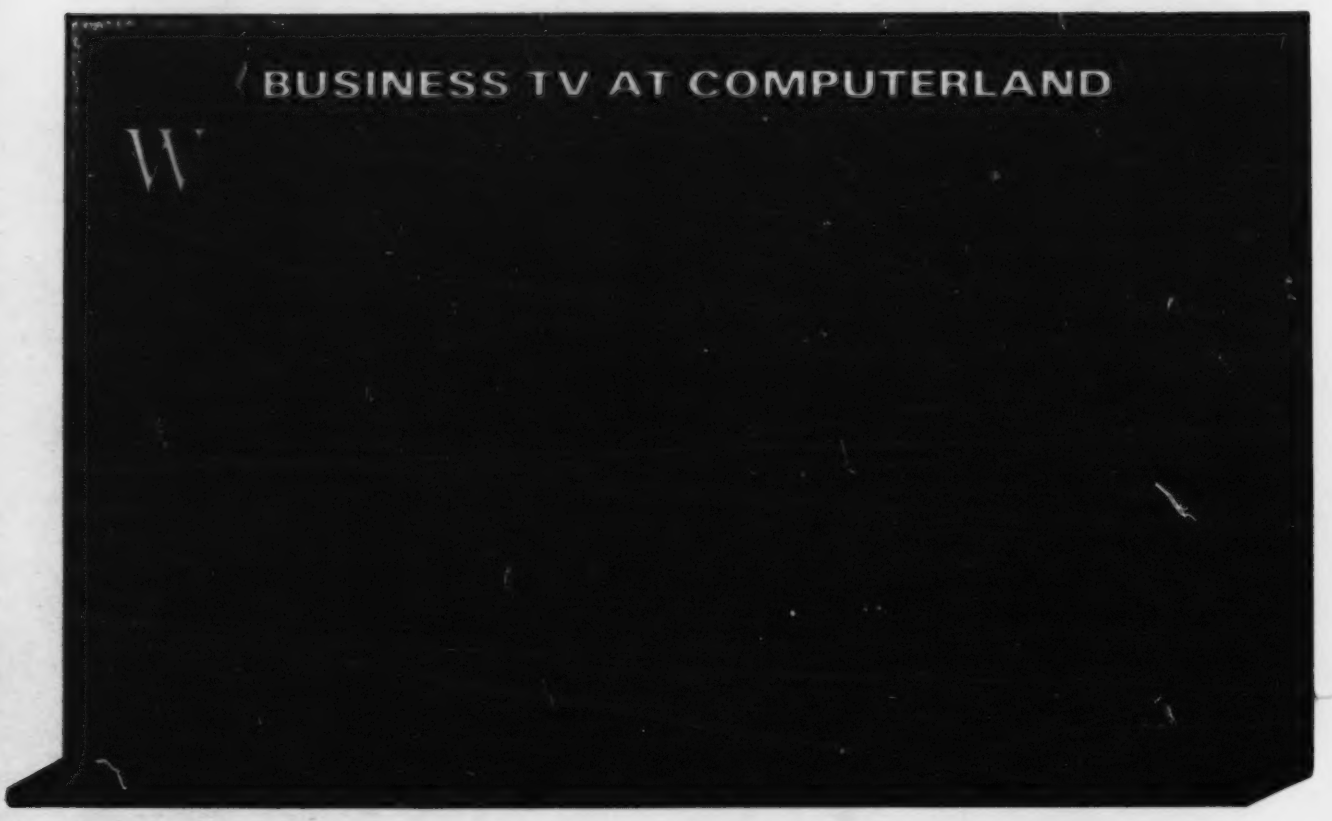
When it's available, generic, off-the-shelf software can be considerably cheaper. Interactive Medical Communications, a $12-million company that makes only interactive-video products, offers a series of generic programs that teach Occupational Safety and Health Administration standards, for about $1,700 per program. The company also rents hardware; a complete package can cost as little as $125 per trainee.

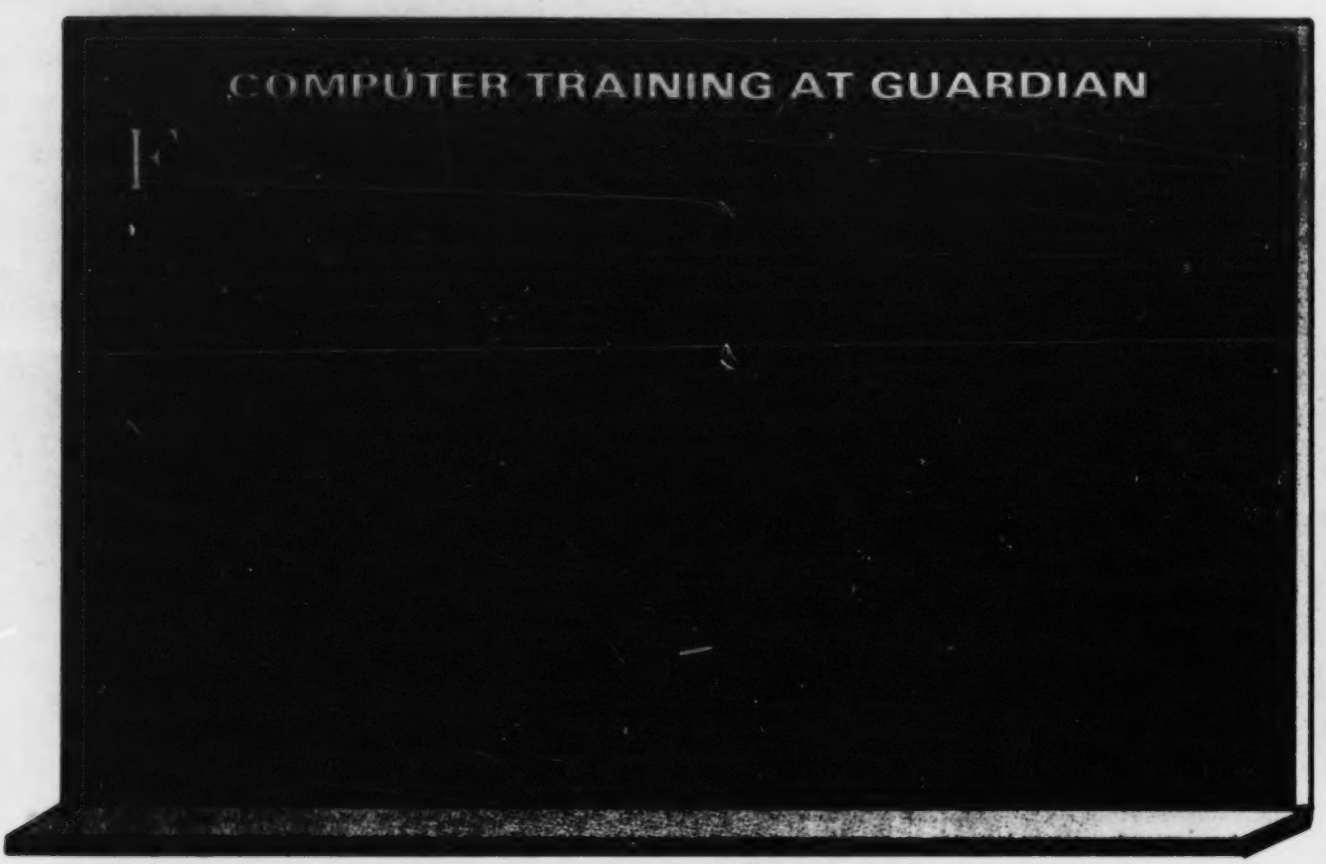
For companies that can afford the up-front investment for hardware and software, the long-term payoff from interactive-video training can be substantial. A system used by the U.S. Army cuts training time by almost 50 percent for computer repairmen who must learn to maintain and repair disc drives in Digital Equipment's VAX minicomputers. Formerly, an instructor needed three days to train 15 people, giving each student time on the computer. The interactive-video system lets instructors teach 15 people in less than two days. Instructors can cost $400 a day, so this can represent a substantial savings.

Such savings in time and expense account for the sudden pickup in the popularity of interactive video. Applied Learning Inc. of Naperville, Ill.—probably the biggest player in the fragmented training industry, with about $200 million in annual sales—has seen its interactive-video revenues jump from $3 million in 1985 to an anticipated $80 million this year. "Interactive video is replacing live education," says company president William Roach.

The U.S. Army has been a major benefactor of the technology and recently signed a hardware contract with Matrox that could be worth as much as $223.5 million over the next five years. At Fort Benning in Georgia, an interactive-video system simulates tank warfare, eliminating hazards to soldiers and damage to expensive equipment. On one occasion, trainees using actual tanks drove into a river and several people drowned, recalls Thomas Reeves, assistant professor of instructional technology at the University of Georgia. The tanks also wore paths in the ground that were easy to follow, allowing drivers to cheat. No such problems arise during a computerized simulation.

Interactive video is also making significant inroads in sales training, because it can demonstrate body language and other visual cues important in approaching a customer. Massachusetts Mutual Insurance Company of Springfield, Mass., uses a system that trains agents, and then videotapes their performance in various sales situations. Agents may retape the exercise as many times as they like, then show it to





a supervisor for a critique. The $15,000 system includes a touchscreen monitor, a laser-disc player, a color camera and video recorder/player, and an IBM AT personal computer, all housed in a portable cabinet.

The Massachusetts Mutual system cuts training time by about half, says Jane Curtis, director of field development. At one field office, the system contributed to a 40 percent increase in agent productivity, as measured by sales results.

Because laser-disc video systems offer greater interaction, they could eventually replace videotape in the training industry. However, it will be at least five years before disc systems make serious inroads. At the moment, videotape is the training industry's most popular technology. A survey by Minneapolis-based Lakewood Research found that 80 percent of the trainers polled use videotape, compared to 35 percent who use computer-based training systems, and 3.9 percent using interactive video.

ACTV of New York is developing an interactive videotape system that may help the older technology hold on even longer, particularly as companies seek to maximize the return-on-investment of their tape equipment before buying laser-disc hardware. The ACTV system is being developed for the consumer market, but may find its way into training by the end of the decade, says Rockley Miller, editor of *The Video Disc Monitor* newsletter. The device can read one of several parallel tracks on the videotape, allowing the program to branch into various areas in response to student inputs. The interactive tape would run on a conventional videotape player equipped with a "black box" to read the specially coded tape.

Nevertheless, the technology still has limits for training, says Miller. In particular, videotape can't hold a still image for very long, and the tape cannot easily go backward when a student's performance indicates the need for review—something that's a snap with random-access video discs.

Computer-based training systems lack the visual capability of interactive video, but their lower cost makes them attractive alternatives for teaching cognitive tasks such as memorizing a body of knowledge or learning the steps of a procedure. Generally, computer-based training consists of either custom or generic software on a floppy disk that runs on a conventional personal computer. Custom programs can cost $40,000 to $70,000, about one-fifth the price of comparable interactive-video software, says Michaels of Learncom, which also sells off-the-shelf software ranging from computer literacy to project management for less than $200.

Prudential Insurance Company of America uses a computerized training program to prepare agents for the National Association of Security Dealers licensing exam. The company hired Longman Financial Services Institute Inc. of Southfield, Mich., to develop the program. When agents were taught in classroom lectures, only about 68 percent passed the exam, says John Murray III, Prudential's vice president of research. With the computer-based training program, the pass rate jumped to almost 90 percent. The program has also helped Prudential deal with rapid agent turnover: Its agents are more content after passing the exam, be-

cause the license lets them sell products such as mutual funds and variable annuities that boost commissions.

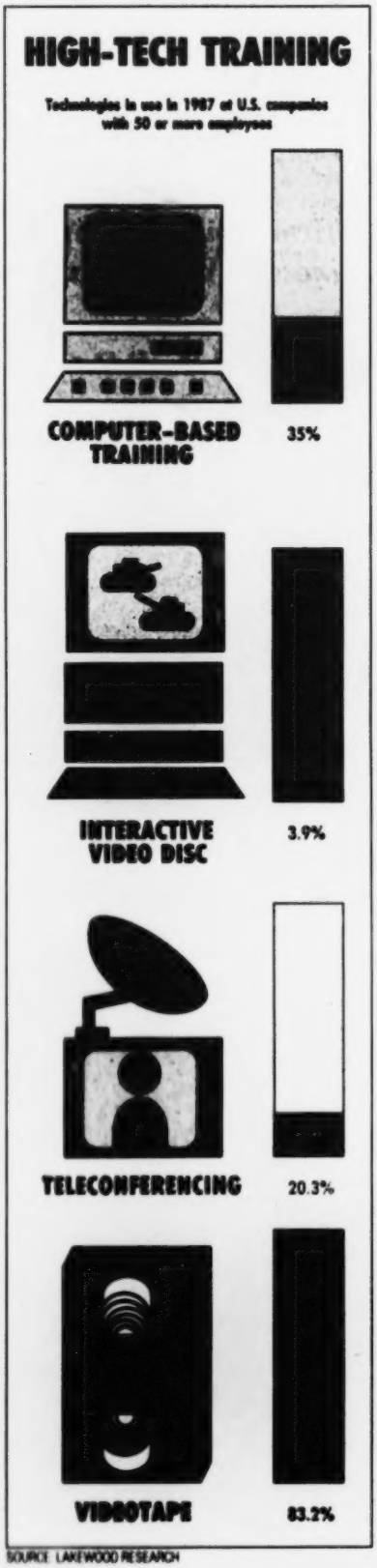
Computer-based training also is used extensively for management training, especially for exercises that simulate business situations. Such exercises let managers practice running various divisions of a company—operations, finance, research and development—without making real-life judgment errors that could damage the company. During a typical simulation, participants divide into teams that are given the responsibility of running a fictitious company. The computer program crunches through the data and provides quick feedback on the imaginary company's profits and competitive position, based on the management decisions made by the players.

When immediacy is an issue, teleconferencing continues to be the best way to get the word out. On the evening of last October's stock-market crash, several financial services and brokerage firms, including Merrill Lynch, used private television broadcasts to contact brokers scattered across the country. "In situations like that, the savings cannot be measured," asserts Elliot Gould, publisher of the industry newsletter *Telespan*.

More tangible savings from teleconferencing come from reductions in training-related travel. Using a business TV network, companies can broadcast training programs to employees at their workplaces.

Although business TV is widely considered a successful training technology, its high price limits it mainly to large companies. Installing a private network can cost more than $1 million, plus ongoing operation and production costs. And even though satellite-telecast programs reach large, dispersed audiences, they are basically an extension of the auditorium-lecture approach. Interaction between lecturer and worker is limited to the few telephone calls that may get through to the studio. "A trainer couldn't possibly handle all the calls. He probably gets a tenth of 1 percent," says Ron Zemke of *Training* magazine.

In the near future, training will be delivered on adaptations of compact-disc players. Like video discs, compact discs store data as a digital pattern of pits on the disc's surface. A laser reads the pits, which are then decoded and presented as pictures on a screen, sound through a speaker, or data on a computer monitor.



Compact discs, which are technically the same as the 4¾-inch CDs used in home stereo systems, can store vast amounts of data—one disc can hold the equivalent of the information available on 1,500 floppy disks.

Compact disc-interactive (CD-I), being developed by Philips, in cooperation with Matsushita and Sony, combines limited interactive video with large databases. SK&A Research's Krasny says CD-I could be useful for teaching sales people who must sell a wide array of products from a catalog, such as those from large department stores or auto-parts dealers. In addition, at about $2,000 for a complete system, CD-I hardware would cost about one-third the price of a comparable video-disc system. CD-I is expected to hit the consumer market in mid-1989, and possibly the training market in another year after that.

General Electric is developing an alternative to CD-I that can deliver moving pictures, but experts say the picture quality is not up to snuff. This technology, called digital video interactive (DVI), uses add-on boards to coordinate a personal computer, a CD-ROM drive, an amplifier, and speakers. The add-on boards could add approximately $7,000 to the cost of such a system. DVI technology, which is expected to reach the consumer market in 1990, can accommodate more full-screen, full-motion video than CD-I.

Although compact-disc technology represents the next wave of training technology, it's still too early to speculate on when it will arrive. The training industry has been slow to accept interactive technologies, and, as one executive put it: "You can't hit them up every year with a new gadget." The acceptance process could be accelerated when CD systems are able to provide acceptable moving images; until then, many software developers may ignore CD technologies.

But even the most sophisticated, readily adoptable, technology will not put Miss Crabtree on the unemployment line. In the future, instruction may involve a machine that delivers the lesson and a person who handles problems and can therefore spend more time with trainees. The bottom line: Miss Crabtree will become more efficient and her students will become more productive. ■

ANN COFFIN SMITH

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Design and Delivery of Customized Training Programs for New and Expanding Business and Industry

JOLYNE GHANATABADI and COLLETTE SAYLOR

The community college's major role in economic development was affirmed in Iowa by the passage of the Industrial New Jobs Training Act in 1983. It has provided tax incentives to new and expanding businesses and granted exclusive rights to the state's community colleges to contract for training with eligible businesses. That legislation and the six-step process the Des Moines Area Community College uses in the designing and delivery of customized training for new and expanding businesses and industries in its district are discussed.

An examinination of the customized training made possible by Iowa's New Jobs Training Act (House File 623) should start with a brief background of the Des Moines Area Community College. It is a comprehensive community college with its main campus located nine miles north of Des Moines, the capitol of Iowa. Established in 1966, it is one of 15 community colleges in the state of Iowa, the largest community college in Iowa, and the fourth largest college in Iowa. Its eleven county area encompasses 6,560 square miles and serves approximately 8,900 full-time students and 52,000 part-time students on four different campuses. The college offers vocational, two-year college transfer, and adult and continuing education programs.

Iowa has a highly educated and qualified work force: 76 percent of the state's population age 25 and over are high school graduates, one-third of whom have completed one to four years of college. We have the highest literacy rate in the country and rank in the top two or three nationally in college ACT scores. A right-to-work state, Iowa prides itself in that the workers have been rated as being 35 percent more productive than the national average (Iowa State Department of Economic Development, 1987).

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Primarily an agricultural economy, Iowa has experienced major economic, social and political changes throughout the 1980s due to the agricultural crisis. There have been farm foreclosures and bank failures, with related industries closed down and retrenched resulting in thousands of Iowans out of work. Many experts claim the state will continue to experience these major transitions throughout the 1990s. The state is slowly becoming more diversified relying on industrial and service oriented businesses to reduce unemployment and to speed up the growth of the state's gross product (Iowa's Golden Circle, 1987). New intitatives have been introduced to revitalize the state. To attract business, the state has eliminated the personal property tax on business inventories, created tax credits for job creation, and eliminated the sales and use taxes on industrial machinery, equipment, and computers.

In 1983 in an effort to stem the tide of recession, the Iowa General Assembly passed the Industrial New Jobs Training Act, House File (HF) 623. This act was to attract new industry to the state and encourage existing businesses to expand. The costs of training are financed by diverting a percentage of the payroll withholding taxes from new jobs generated by the company and applying incremental property taxes created through capital expansion. The employer pays nothing for the program because the revenue comes from the taxes ordinarily paid with or without the program. The college, in turn, then issues training certificates for the anticipated revenue generated from these sources.

The program is quite flexible. The training may be conducted either at the new facility, at the parent company headquarters, or in a classroom. Training or program costs include, but are not limited to, the following:

- pre-emploment screening, counseling, evaluation, and training;
- adult basic education and other basic skills;
- on-the-job training (up to 50 percent of the worker's salary to be reimbursed during the training period);
- customized job-specific skills training on site with industry equipment;
- the provision of equipment, supplies, facilities, and materials needed for training;
- subcontracted services with other institutions governed by the Iowa Board of Regents, private colleges or universities; or other federal, state or local agencies; and
- contracted services with professional consultants.

As a result of the 1986 Federal Tax Reform Act, no other state can duplicate this program.

To assist in the growth and development of business enterprises, government agencies, communities and individuals in central Iowa, the Des Moines Area Community College created the Economic Development Group. It includes four divisions: contract training, continuing education, the Golden Circle Incubator, and the Golden Circle Satellite Center. The contract training division works mainly with new and expanding businesses.

The primary objective of the contract training division is to provide job-specific skills training to business and industry through a variety of nontraditional approaches including individualized and self-paced instruction, seminars and workshops, and on-site training.

Since 1983 the College has provided customized training to 53 new and expanding businesses resulting in 4,597 new jobs in the eleven county area with a total dollar value of over 17 million in training certificates issued. Representative business and industries with which the College has worked are: telemarketing, seed corn research, accounting services, insurance, sign making, food additives, credit services, printing, and window making. Specific companies include: Greyhound Lines, Garst Seed Corn, Deere Credit Services, Integrated Resources Life Insurance, Armstrong Tire & Rubber, Commtron, and Rolscreen.

Each company has had different training needs. It has been important for us to be flexible and to work closely to provide the training when and where the firm wants it. The procedure for working with the companies in providing customized training for their new employees follows six basic steps:

- analysis of the company;
- training needs assessment based on job and task analysis;
- identification of training outcomes;
- training program design, development, and delivery method;
- implementation; and
- evaluation of the training.

When first consulting with a client, we strive to learn as much about the company as possible. This includes the firm's reporting structure and hierarchy to identify those within the organization who have the authority to sign agreements and make decisions regarding all phases of the training program. Often companies in working with the college will select an employee to serve as the liaison who, in turn, must seek needed answers from others within

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the company. The effectiveness of this liaison depends to some extent upon the power granted. The closer this liaison is to the chief executive officer, the more rapidly decisions can be made. Working with people in authority who are aware of the company's plans for expansion is important because a HF 623 agreement is partially funded from adding new positions. The design and delivery of the training are dependent upon the schedule and size of the company's expansion. From 1 to 12 months lead time, we have developed training programs for companies. Clients who give us the longer timeframe may have their training programs more customized.

Another part of the company analysis is determining the firm's commitment to training. Is training viewed as an important use of time and money, or merely as a way to spend the HF 623 dollars? Without the money would the firm still train new employees and to what extent? What kinds of training have been done in the past: company classroom; public classes; on-the-job training; or that performed by an outside consultant or vendor?

Here is an illustration. Greyhound decided to consolidate two accounting offices and relocate the single office to West Des Moines, hiring over 700 new employees. Des Moines Area Community College had approximately nine months before the move to design and develop training for these new employees. Two things made this project unusual: Greyhound had no offices or staff in Des Moines, and they had previously relied on their supervisors for on-the-job training to train new employees.

To start with, a five-member team of training consultants from the College was assigned to the project and given specific contacts within Greyhound for determining course content; provided unlimited phone budgets; and made several trips to the work sites in Cleveland, San Francisco, and St. Louis. The project manager and a Greyhound liaison worked out the details requiring executive decision. Next, because of the large number of new hires and the requirement that following the training of new employees, the West Des Moines office would immediately assume all the functions of the prior offices, the staff from the College convinced Greyhound of the need for classroom, supervisor-led instruction. These classes were designed to teach competencies with built-in testing using actual Greyhound paperwork and forms.

The second step of the six-step process involves conducting job and task analyses to identify the tasks the new employees will be doing to determine training needs. Job descriptions are reviewed, supervisors and current employees are interviewed, vendor and

manufacturer equipment manuals are examined, and management is asked to project needed job skills. For example, in a telemarketing organization, important concerns are grammar and diction, telephone sales skills, computer literacy, and recordkeeping. Conversely, a manufacturer may have a need for high-tech training in electronics and robotics, welding, equipment operation, and safety.

A further consideration is the skill level of the available labor pool. Can the company hire new employees with the necessary skills or will the training program teach those skills? The training program can also be designed to upgrade the skills of current employees to match changing technology.

This leads to the third step in the process, identifying the outcomes of the training program. As training consultants, we help companies develop realistic expectations. It is extremely important early in the design of training that the employer's expectations are clearly understood to ensure that the program has the direction and evaluative tools to verify success. For example, HyVac Laboratory Eggs requires complete accuracy on job tasks to maintain the disease security of the chickens. Recognizing this expectation, the training is designed so that new employees must pass with a series of job related tests and functions with 100 percent accuracy.

After careful questioning and listening to company representatives' responses, we are ready to design, develop, and plan delivery of the training program. The HF 623 regulations afford much latitude in meeting client needs. Therefore, the programs vary in the type and scope of training.

The design of the training program is greatly affected by the chosen delivery method. This decision is based on the number of employees to be trained and the length of the employment phase-in process. Individualized instruction is used if there are few new employees with a long-term phase-in. If there are many employees to be trained in a short period of time, we use classroom instruction. The nature of the skills themselves also affects the design. High-tech or repetitive machine skills require hands-on training, whereas office skills development may require short classroom instruction complemented by accompanying manuals.

Another factor affecting the design is who will be responsible for the instruction: company trainers or supervisors, community college faculty, or outside consultants. If company supervisors are selected to do classroom training because of their expertise, the Des Moines Community College training consultants assist them with course design and conduct train-the-trainer workshops. Our faculty

are often selected to conduct training based upon their expertise in areas extraneous to the skills of company personnel: high-tech areas, such as electronics and blue print reading; and in the basic skill areas of math, reading , and computer literacy.

Outside consultants are chosen for their particular areas of expertise: teaching supervisory skills, writing and speaking skills, technical writing for manuals, video scripting, and computer-based programming.

The Des Moines Area Community College has a state-of-the-art video production facility. Media staff assist in all phases of training, design, and delivery including video development and production, and preparation of audio/slide tapes and overhead transparencies. Frequently existing training programs, materials, and media are used to augment a training program. For a comprehensive supervisory training program, the college contracted with Development Dimension International to market and use their supervisory program, Interaction Management. This collaboration has significantly enhanced our ability to provide quality supervisory training within a short time frame.

Once the training has been developed, the fifth step, implementation, begins. Serving as consultants, we schedule training, select a training site, hire instructors, and provide any support needed to make the training go smoothly and successfully. Scheduling may be for just one section of a class or for developing a year-long series of training events. We also work closely with the client to determine training times: during work hours or after hours. If training is conducted during work hours at the work site, the new employees recognize that the company has made a strong commitment to their development and training.

Site selection, from the shop floor to the college classroom, can be any place that can accommodate the type of training to be delivered. Instructors are hired from the company, from the faculty, and from the outside. We also coordinate a variety of support services: ordering training materials, arranging for equipment usage, and awarding continuing education units and attendance certificates.

Throughout the design and implementation of the training, the College's training consultant is responsible for managing all phases of the project. These include: budgeting, complying with the regulations of the college and the state, authorizing all payments, and maintaining ongoing frequent contact with the client. As we adapt to the changing environment and needs of an expanding or new business, these functions become quite fluid.

Following implementation, which may continue over several years, the sixth step begins—evaluation and ongoing follow-up. The latter uses a variety of instruments: single course evaluations, company/supervisor assessments of training outcomes, and the hiring of outside consultants to evaluate the overall project relationship with the college. The first two are a matter of course. For the Greyhound Project, we used an outside consultant review because of the project's size and because it was the first major HF 623 effort undertaken by the College. The results of the consultant's review have been used to identify those areas that went well and those that could use improvement. This information contributed to the development of the process we now use with all clients.

Because the Economic Development Group has become a sales arm for the college, we maintain contact with our clients and frequently follow-up with them to identify additional training needs. The flexibility of this process, with all steps often occurring simultaneously, affords us the opportunity to respond rapidly to changing client needs.

The college's training consultants have become expert at developing the best possible training solutions for the most complex of training problems. The following case studies illustrate the flexibility and creativity of the uniques applications for the HF 623 monies.

Arrow Signs, Inc.

The company manufactures outdoor signs using a unique plastic heat molding process. In the course of working with this company, we:

1. Produced an orientation video.
2. Illustrated process and procedures manuals with a glossary of terms and an instruction model.
3. Conducted a safety and right-to-know- investigation and established a training program.
4. Refined personnel practices including: job descriptions, job application form, screening, interviewing, and hiring techniques.
5. Led management/supervisory training.
6. Conducted training in computer software applications.
7. Led professional seminars and workshops.

Integrated Resources Life Insurance Company

This multi-life insurance company provides customer service and administers insurance policies and payout. In cooperation with Integrated Resources, we:

1. Produced an orientation video program.
2. Hired a trainer paid from HF 623 dollars.
3. Developed a year-long training schedule.
4. Designed skills development courses in use of the telephone, business English, business writing, and dictating.
5. Offered computer literacy and insurance classes for professional development.
6. Organized supervisory training including basic supervisory skills, personnel practices, and teaching employees how to do a job.

Hyvac Laboratory Eggs

This company produces pathogen-free eggs. For this company we:

1. Produced competency-based individualized instruction modules with audio/visual tapes in all areas of chicken management, egg production, blood sampling, and disease detection.
2. Conducted professional seminars and workshops.
3. Created a video overview.

Greyhound Lines, Inc.

This national office handles accounting functions for Greyhound Bus Lines. In working with them, we:

1. Involved over 140 college staff in employee relocation and training.
2. Developed over 64 units of instruction and 15 job-specific instructor manuals using the assistance of Greyhound personnel to determine appropriate content.
3. Prepared all transparencies and videos for training sessions.
4. Did all typing, filing, duplicating, and collating of training materials.
5. Gave each department 4-78 hours of group instruction.
6. Trained 700 people, representing 24 departments on 21 separate dates including on-site data entry classes offered during the day and evening.
7. Designed 18 hours of core instruction.
8. Gave a train-the-trainer workshop for instructing Greyhound personnel.
9. Maintained flexibility so that when a department moved from Phoenix, Arizona, the college staff developed curriculum material in four weeks and conducted courses of three weeks in length.
10. Received the AACJC's Keeping America Working award in 1986.

Deere Credit Services

The company relocated its retail credit offices, centralizing financial services. In consultation we:

1. Worked with seven members of top management to develop training to assist them in meeting a 30-day start-up deadline.
2. Developed an orientation to Deere systems and operations.
3. Prepared an individualized training manual on collection procedures for a computerized system.
4. Prepared training manuals for field representatives and legal staff.
5. Conducted classes on how to use a CRT.
6. Conducted training on the basic usage of their state-of-the-art telephone system.
7. Worked with the telephone vendor and systems vendor to develop a computer-assisted collection system.
8. Worked with the Des Moines and West Des Moines Chambers of Commerce in developing relocation services.

Commtron

This company is a video and electronic equipment distributor. In working with the firm, we:

1. Produced job training manuals for telemarketing.
2. Prepared procedures manuals for office and accounting personnel and for sales representatives.
3. Conducted supervisory training for managers.

The six-step process has been successful for us at Des Moines Area Community College. Each company that we have worked with has had unique needs and has brought new challenges and rewards to our job as training consultants.

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Jolyne Ghanatabadi, M.S. in Ed., is a business and management instructor who served previously as a training consultant with the Economic Development Group, Des Moines Area Community College, Ankeny, Iowa.

Collette Saylor, M.P.A., is a training consultant with the Economic Development Group, Des Moines Area Community College, Ankeny, Iowa.

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TITLE: **"Adult Education."**

JOURNAL: *Educational Documentation and Information;* n233 p1-101 1984.

ANNOTATION: Reviews literature on origins of adult education, scholarly and innovative approaches, recent pressures for change, and methodological responses (e.g., aids and materials, individual learning, programmed learning, distance education). A 378-item bibliography includes an author and editor index. Sources of computer printouts used and libraries and journals consulted are appended. (EJS).

TITLE: ***Adult Education as Training in Business and Industry.***

DATE: 84.

AUTHOR: Young, Deborah J.

ANNOTATION: Over a 5-week period 43 typical trainers in a nationwide corporation were observed to determine uses and abuses of training techniques. The adult educators who were observed were technically expert, but otherwise untrained. Factors that enhance or detract from training effectiveness were identified, specifically regarding organizing and developing presentations. Abuses of the factors were determined, and recommendations for improvement were made. The following factors/components of organizing and developing presentations were studied: objectives, sequencing, methods and techniques, timing, audiovisual materials, and mannerisms or trainers' behaviors. The technicians/trainers who participated in the observation agreed that a heightened awareness of the principles of adult education would help them plan, develop, and present better programs in the future. (YLB).

FORMAT: Research Report, 3p.

AVAILABILITY: For a microfiche copy of this document order ED272756 from FEIS.

TITLE: ***Adult Learners: Implications for Faculty.***

DATE: 86.

AUTHOR: Kelly, Diana.

ANNOTATION: Drawing from a review of the literature, this paper explores the role of university and community college faculty in teaching the growing number of adult students and potential adult students. First, Section I offers background on the growth in adult enrollments at Fullerton College (California). Next, Section II profiles the adult college student, exploring the social, psychological, and demographic characteristics of the adult learner; barriers for adult learners; the motivations of adult learners; and the implications of these characteristics for college educators. Section III reviews studies of adult learning, exploring the learning capacity of adults and their preferences for highly structured instruction, innovative learner-centered activities, and relevant content. Adult learning theories and teaching methods are highlighted in Section IV, touching on the andragogical use of self-directed learning, learning contracts, structured inquiry, competency-based education, and experiential learning. Section V focuses on teaching techniques for adult students. It begins by posing some philosophical and practical questions about how adults should be taught, and then offers guidance for using andragogy in teaching, utilizing methods which require active participation, facilitating discussion, and teaching students to teach themselves and others. This section also includes a discussion of the special aspects of corporate training programs. Finally, Section VI presents a summary and recommendations. (EJV).

FORMAT: Information Analyses; Position Paper; 48p.

AVAILABILITY: For a microfiche copy of this document order ED277442 from FEIS.

TITLE: ***Adult Learning in the Workplace. A Report of a Resource Group Meeting Held at Teachers College, Columbia University (New York, New York, June 7, 1985).***

DATE: 85.

AUTHOR: Marsick, Victoria J.; And Others.

ANNOTATION: This document reports the proceedings of a 50-person resource group meeting that included leaders from business and industry, government, unions, universities, the media, foundations, and schools. The group explored the implications of a Carnegie Foundation-sponsored study reported in *Corporate Classrooms: The Learning Business*, prepared by Dr. Nell Eurich of the Academy for Educational Development. The report is organized in five parts. Part I summarizes the proceedings, while a summary of highlights and implications from the report and reactions to it are presented in Part II. Part III is a summary of the discussion of three groups that probed issues in the following areas: human capital development in the post-industrial era, linkages between corporations and universities, and new approaches to education in the workplace. Part IV is an interpretive summary of six key themes raised throughout the day: (1) the rapidly growing phenomenon of adult learning in the workplace; (2) the way in which this growth has been driven by change, a need for adaptability and flexibility, and a concern for human capital development; (3) the lead taken by corporations in innovative approaches to education; (4) the keen interest of corporations in the best way to facilitate adult learning; (5) a need for functional linkages between corporations and universities; and (6) policy issues regarding the rationalization of linkages, use of public funds, and a proposal for a Strategic Council. The final part of the document summarizes suggestions made during the conference of ways in which Teachers College could respond to some of the needs that were identified. (KC).

FORMAT: Conference Proceedings; Position Paper; 48p.

AVAILABILITY: For a microfiche copy of this document order ED260214 from FEIS.

TITLE: ***Adult Retraining—An Investment in People.***

DATE: 83.

AUTHOR: Sumner, Jack; Wilson, Ric.

ANNOTATION: Adult retraining is an important area for educators to understand because there appear to be some changes developing in the delivery of education and training. One change relates to the entry of private enterprise into the training field, such as the computer courses being held by Radio Shack. Other changes concern the population to be educated. This population tends to be more mobile than ever before, and older. These characteristics mean that many adults will be coming and going in training programs (having an effect on the types of programs that can be successful), and that adjustments in teaching strategies will have to be made to compensate for adults' slower reaction times and possible health problems. Other changes in the adult population that will affect retraining include the possibility of job layoff (which may potentially make learners hostile or fearful), increasingly stressful ways of life, and smaller families. The explosion of knowledge as technology advances also makes the task of teaching adults even more overwhelming; the amount of information students must know constantly increases. (KC).

FORMAT: Conference Paper; Position Paper; 10p.

AVAILABILITY: For a microfiche copy of this document order ED237707 from FEIS.

TITLE: ***Adults and the Changing Workplace. 1985 Yearbook of the American Vocational Association.***

DATE: 84.

AUTHOR: Shulman, Carol Herrnstadt, ed.

ANNOTATION: The 31 papers in this yearbook are organized in five sections: (I) CHANGES IN THE LABOR FORCE, which includes: "Labor Market Needs to the Year 2000" (Morgan V. Lewis) and "Occupational Adaptability and Transferable Skills: Preparing Today's Adults for Tomorrow's Careers" (Frank C. Pratzner and William L. Ashley); (II) EDUCATING ADULT STUDENTS, which contains: "Adult Education Defined" (Wendell Smith), "Adult Vocational Education" (Robert M. Worthington), "The Causes and Timing of Adult Learning" (Carol B. Aslanian), "What We Know about Adult Learning Styles" (Patrick R. Penland), "New Resources for Adult Education and Training" (Paul E. Barton), "Preparing for a Sound Adult Education Program" (Beverly Copeland and Meredyth A. Leahy), "Today's Proprietary Vocational Schools" (Lee R. Kerschner and Christopher Davis), "Industry Training Efforts in Adult Education" (Robert Craig), "Labor Union Efforts in the Training of Adults" (Edgar Czarnecki), "Community Colleges and the Adult Learner" (Michael Crawford), "Military Training" (Clinton L. Anderson), "Continuing Education" (Lee Transier), "Delivery System for Adult Education: Cooperative Extension Service" (Mary Nell Greenwood), "Comprehensive High School Adult Education" (Paul V. Delker), and "Federal Training Programs" (Thomas N. Daymont); (III) REACHING OUT TO ADULT LEARNERS, which includes, "Support Services for Adult Learners" (Mary Ellen Kiss and Margaret A. Talbi), "Recruitment and Retention of Adult Learners" (Yvonne Ferguson), "Impact of Technology on Curriculum and Delivery Strategies in Vocational Education" (David L. Goetsch), and "Collaboration among Adult Education Agencies" (Alan B. Knox); (IV) EDUCATING SPECIAL POPULATIONS, which contains: "Women and Vocational Education" (National Council on the Future of Women in the Workplace), "Issues and Trends Influencing the Education and Training of Minority Groups" (Roy G. Phillips), "Immigrants and Refugees" (William P. Reich), "Vocational Education for Disabled Adults" (George Travis), and "Groups at Risk" (Robert G. Wegmann); and (V) PUTTING THEORY INTO PRACTICE, which includes: "Collaborative Efforts with Industry, Government, and Education" (Robert E. Scarborough), "Adult Education in an Urban Environment" (Robert W. Rupert), "Michigan's Efforts to Address Labor Market Challenges" (Gale King and William Weisgerber), "Prepackaged Adult Programs" (Barry L. Reece), and "Center for Employment Resources" (Rosemary F. Kolde). (MN).

FORMAT: Book; Position Paper; 295p.

AVAILABILITY: For a microfiche copy of this document order ED252663 from FEIS.

TITLE: **"Applying Principles of Learning to Adult Training Programs."**

AUTHOR: Lanese, Lorena D.

JOURNAL: *Educational Technology*; v23 n3 p15-17 Mar 1983.

ANNOTATION: Looks at training practices in the business community to see how adult learning theories—individual differences in adult learners, positive environment for adult learning, personalization of adult learning needs, using adult learners' experience, and formalizing the use of practice in training—are being applied. (MBR).

TITLE: **"Building Excellence through Training."**

AUTHOR: Wagel, William H.

JOURNAL: *Personnel*; v63 n9 p5-6, 8-10 Sep 1986.

ANNOTATION: Describes the environment and activities of trainers at Motorola, Inc. in Schaumburg, Illinois. Topics covered include Motorola's new Galvin Center for Continuing Education, an in-house career development series, teaching methods, use of external programs, and future goals. (CH).

TITLE: ***The Case for Criterion-referenced/Modular-based Instruction in Business, Industrial, and Military Settings.***

DATE: 86.

AUTHOR: Hymel, Glenn M.

ANNOTATION: This paper advances the argument favoring criterion-referenced/modular-based instruction (CRMBI) as applied to training and educational efforts in business, industrial, and military settings. CRMBI is defined as an instructional delivery system (along with the concomitant curriculum design and instructional materials development implications) that accommodates the following themes: (1) predetermined learner outcomes; (2) prerequisite learner background; (3) instructional sequencing; (4) criterion-referenced evaluation; and (5) flexible student entry and exit points. The proliferation of the professional literature in this area over the past 20 years points to increasing acceptance of CRMBI, particularly in teaching risk-oriented technical skills and in the multitude of diverse training situations to which CRMBI has been directed. Finally, a variation of CRMBI that is small-group-based and flexibly teacher-paced is presented as an optimal instructional management tool that maximizes time flexibility for the student in a responsible way. A seven-page reference list is provided. (Author/KC).

FORMAT: Conference Paper; Information Analyses; 22p.

AVAILABILITY: For a microfiche copy of this document order ED277896 from FEIS.

TITLE: ***Corporate Classrooms: The Learning Business. A Carnegie Foundation Special Report.***

DATE: 85.

AUTHOR: Eurich, Nell P.

ANNOTATION: Education in U.S. industry and business is discussed, and the history of business-based education is traced to nineteenth century efforts to meet both the demands of productivity and the training of workers. After discussing the size and scope of efforts to train employees, reasons for corporate training are identified. Four dimensions of the corporate learning enterprise are considered: in-house educational programs, educational and training facilities, degree-granting institutions, and the satellite university. Specific topics include facilities for corporate education; educational structure; the position of the training program in the company; teaching methods in the corporate classroom; research into how people learn; basic skills instruction; the education of managers and executives; technical and scientific training; sales, service, and customer training; general education; overlap with the educational establishment; and the quality of corporate courses. Information about 18 corporate education institutions is provided on program location, sponsor and history, type of institution, date established and date degree approved by state, nongovernmental accreditation, and degrees awarded. A bibliography is included. (SW).

FORMAT: Book; Project Description; 172p.

AVAILABILITY: For a microfiche copy of this document order ED264785 from FEIS.

TITLE: **"The Corporate Training Department as a Clinic for the Study of Instructional Design."**

AUTHOR: Foshay, Wellesley R.

JOURNAL: *Journal of Instructional Development*; v9 n3 p17-21 1986.

ANNOTATION: Discusses possibilities for joint instructional design projects between academic researchers and corporate sponsors in the private sector. Corporate training strategies are explained, research strategies are suggested that are currently in use at one corporation, Advanced Systems Inc., and guidelines are given for improving communication in joint research projects. (Author/LRW)

TITLE: **"Crash Training."**

AUTHOR: Geber, Beverly.

JOURNAL: *Training*; v25 n3 p40-45 Mar 1988.

ANNOTATION: Crash training is implemented when sudden instruction is needed within a limited time. Outside factors such as a new product, worker strike, a merger, or new government regulations usually create the need for crash training, and the human resources development area can be challenged by such an event. Linda Novotney Kemp of Dayton Hudson Department Stores was faced with training 20,000 employees within 3 months with no prescribed course. However, the newly designed course was successfully delivered through teamwork and intense concentration. The accounting firm of Arthur Andersen & Co. presented trainer Michelle Landow with a difficult situation when the Tax Reform Act of 1986 was passed. Landow was faced with revising 300 hours of course instruction. Through specialty teams and an advisory committee, Landow successfully formulated a timely, logical curriculum. Other examples of companies involved in crash training situations are presented, including Delta Airlines and BayBanks Inc.

TITLE: ***Customized Training Marketing Plan.***

DATE: 86.

AUTHOR: Lay, Ted.

ANNOTATION: This report outlines Oregon's Lane Community College's (LCC's) plan for marketing its customized training program for business, community organizations, public agencies, and their employees. Following a mission statement for the customized training program, a brief analysis is provided of the economic environment; of competition from educational institutions, private consultants, training companies, professional associations, in-house training departments, and non-profit tax-exempt organizations; and of college image. The next sections describe the "product" to be marketed (i.e., LCC and its facilities and programs), the "customer" (i.e., a variety of businesses and public organizations), the "target market" (i.e., new, existing, and expanding small businesses; professional and service organizations; and the public sector), and the goals and objectives of the program. Next, marketing strategies and activities are proposed for each program objective: (1) accelerate contracting organizations with business and other organizations; (2) present a coordinated, positive image to both private and public sectors; (3) promote to the entire college the importance of presenting a coordinated, professional image; (4) respond to all requests for service quickly; (5) assume an assertive stance in pursuing accounts and providing customer service; (6) adapt to new market segments; and (7) provide short-term training programs responsive to changes in technology, employer needs, and business opportunities. Materials from a booklet on the services of LCC's Training and Development Department are appended. (EJV)

FORMAT: Project Description, 34p.

AVAILABILITY: For a microfiche copy of this document order ED289556 from FEIS.

TITLE: ***Distance Education: An Information Age Approach to Adult Education.***

DATE: 84.

AUTHOR: Zigerell, James.

DEVELOPER: ERIC Clearinghouse on Adult, Career, and Vocational Education, Columbus, OH.

ANNOTATION: This study provides an extensive review of the literature on distance education and of representative distance education projects and institutions in the United States and abroad, emphasizing those using telecommunications technologies. The introductory section includes a sketch of the information age and its implications for adult education and outlines the scope of the paper. The second section explains the current boom in new delivery systems, defines distance education and the distance learner, and describes how new technologies are changing the shape of correspondence study. The next section recounts the history of educational broadcasting and of public television and radio in the United States. Then, the emergence of productive collaboration between public broadcasters and educational agencies is discussed, as well as the instructional design process for telecourses, multimedia instruction, and telecommunications consortia. In the next section, distance education is characterized as an international movement, with special attention to the development and influence of the British Open University. Also discussed are methods for maintaining quality in distance education. Another section reviews research on distance learning systems and instructional effectiveness of nonprint media. Concluding sections of the monograph provide a look at the future, a glossary of terms on telecommunications technologies, a list of references, and a selected bibliography. (SK)

FORMAT: Information Analyses; Research Report; 84p.

AVAILABILITY: For a microfiche copy of this document order ED246311 from FEIS.

TITLE: ***Effectiveness of Interactive Videodisc Training: A Comprehensive Review.* The Monitor Report Series.**

DATE: 84.

AUTHOR: DeBloois, Michael; And Others.

ANNOTATION: This report focuses on and suggests ways of using instructional technology to provide better education/training delivery systems, especially the use of interactive videodiscs. The first chapter discusses the need for technology-based training; describes the computer interface components, functions, and characteristics of interactive videodisc systems; considers the theoretical principles involved in designing instruction to enhance learning; provides a historical perspective on the development of interactive videodiscs, including the names of companies that were forerunners in the field; and lists current interactive videodisc manufacturers. Citing information from an extensive literature review of conceptual reports and experimental studies, the second chapter discusses future instructional uses of interactive videodiscs; the purchasing and integration of hardware components into workable systems; and the development and pilot testing of software programs. The chapter concludes with five general statements about interactive videodisc systems. The discussion of instructional design for adult learners in the third chapter includes information on the learning process and four phases of development peculiar to adults. The last chapter summarizes the potential uses of interactive instruction

and notes factors that may inhibit its use in education. A list of the literature cited is provided. (DJR).

FORMAT: Information Analyses; Position Paper; 80p.

AVAILABILITY: For a microfiche copy of this document order ED278370 from FEIS.

TITLE: **"Employee Training in America."**

JOURNAL: *Training and Development Journal;* v40 n7 p34-37 Jul 1986.

ANNOTATION: Presents results of a national survey of training and development executives concerning the state of U.S. employee training. Examples of the topics covered by the survey include corporate philosophy, staffing considerations, needs assessment, training participation, program topics, methods and materials, and program evaluation. (CT).

TITLE: ***Evaluating Short-term Skill Training.* Research and Development Series No. 261.**

DATE: 86.

AUTHOR: Dubravcic, Elizabeth V.; And Others.

DEVELOPER: National Center for Research in Vocational Education, The Ohio State University, Columbus.

ANNOTATION: This guidebook for vocational planners and evaluators describes the many possibilities in evaluating short-term programs. It is intended for use by educators in postsecondary institutions developing and implementing short-term programs, those providing service under the Job Training Partnership Act, and employers who provide in-house skill training. An introduction provides an overview of the project on which the guidebook is based. Chapter 2 compares short- and long-term training programs in terms of duration, philosophy, organizational context, purpose, clientele, instructional staff, curriculum, and linkage with employers. Chapter 3 reviews evaluation models. Various ways to design an evaluation and evaluation criteria and standards are presented. The chapter also offers an evaluation framework that incorporates evaluative criteria appropriate for short-term programs. Chapter 4 discusses key administrative concerns in planning and implementing evaluation. It presents guidelines for conducting all types of evaluation—evaluability assessment, needs assessment, input evaluation, process evaluation, outcome evaluation, impact evaluation, and cost benefit/cost effectiveness analysis. Chapter 5 presents additional guidelines for selecting an evaluation approach. Two innovative approaches are presented: aggregate program review and peer review. The chapter ends with the postcard model—an abbreviated method of evaluating very short programs. Four pages of references conclude the document. (YLB).

FORMAT: Administrative Material, 65p.

AVAILABILITY: For a microfiche copy of this document order ED268373 from FEIS.

TITLE: **"Evaluation."**

AUTHOR: Emerson, Lawrence.

JOURNAL: *Instruction Delivery Systems;* v1 n2 p22-24, 26-28 Mar-Apr 1987.

ANNOTATION: Discusses the importance of both formative and summative evaluation of instructional design technology in educational and business settings. Topics discussed include interactive video, computer-assisted instruction, courseware, industrial training methods, cost effectiveness, learner performance data, current research, computer simulation, and future evaluation needs. (LRW).

TITLE: ***Facilitating Transfer of Learning to the Workplace.***

DATE: 86.

AUTHOR: Beaudin, Bart P.

ANNOTATION: Traditionally, transfer of learning has been a concern only during coursework. It has become clear, however, that there are a number of transfer enhancement strategies that educators and trainers can successfully implement before, during, and after organized learning experiences. Even before training begins, trainers can begin to enhance their students' ability to transfer their training by collecting baseline information concerning (1) the labor needs of the organizations whose employees will receive the training and (2) the skill deficits of the same employees. Such information can be collected from advisory groups, needs assessments, task analyses, and interviews with supervisors and training program participants. Transfer-of-training strategies for use during training include involving participants in the learning process, providing adequate time for practice and feedback, incorporating real work as a part of training sessions in the form of case studies, encouraging co-workers to attend learning sessions, providing time for discussion concerning the debriefing of management about the session, and developing a backsliding prevention program. After the program is over, transfer of learning can be enhanced by sending out flyers highlighting strategies to participants and following up on participants and managers to assess the usefulness of the training program's content. Managers can enhance trainees' transfer of learning by reinforcing positive behavior, by using the jargon used in the learning event when communicating with employees, and by incorporating the results of learning events into performance appraisals. (MN).

FORMAT: Conference Paper; Position Paper; 12p.

AVAILABILITY: For a microfiche copy of this document order ED274791 from FEIS.

TITLE: **"The Facilitative Trainer."**

AUTHOR: Gibb, Peter.

JOURNAL: *Training and Development Journal;* v36 n7 p14-19 Jul 1982.

ANNOTATION: Describes facilitative training, which recognizes that unidirectional imparting of knowledge is a limited view of training, and that involvement, accountability, and feedback are essential elements for effective learning. (Author/JOW).

TITLE: ***High Technology and the Future of Education. Occasional Paper No. 122.***

DATE: 86.

AUTHOR: Baldwin, Lionel.

ANNOTATION: Recent technological advances have imposed dramatic changes in all areas of the U.S. labor market. In particular, the continually increasing demands for technical training and retraining have created an increased demand for continuing education for engineers throughout their working lives. The National Technological University (FOU) represents one innovative method of meeting the lifelong learning needs of workers in a technical field such as engineering. Representing a merger of corporate and academic concerns, FOU broadcasts instruction nationwide via satellite. FOU was created in January 1984 to award accredited masters degrees in selected fields. The FOU academic programs feature approved courses of instruction offered by the 21 universities that have joined together to form the Association for Media-based Continuing Education for Engineers (AMCEE). FOU also provides research seminars in each discipline taught; operates a modern telecommunications

delivery system for convenient, flexible on-site service; offers AMCEE noncredit short courses, seminars, and workshops to introduce newly advanced technology concepts to a broad range of technical professionals; and has established a sophisticated satellite network infrastructure between industry and the university communities. FOU has participated in a study to address the accreditation and state licensing issues raised by a nationwide instructional network such as AMCEE and has undertaken an intensive 3-year test of using computer communications to enhance student-teacher interaction. (MN).

FORMAT: Position Paper, 27p.

AVAILABILITY: For a microfiche copy of this document order ED275851 from FEIS.

TITLE: **"How Do You Determine the Use of New Training Technologies?"**

AUTHOR: Reinhart, Carlene; And Others.

JOURNAL: *Training and Development Journal;* v41 n8 p22-26 Aug 1987.

ANNOTATION: Consists of four views regarding assessment of the need for new types of educational technology within human resource development programs. Makes recommendations on questions to ask when considering implementation of computer-assisted instruction, interactive video, or telecommunications. (CH).

TITLE: ***The Impact of Technology on Adult Learning and Development: An Historical, Contemporary, and Futuristic Perspective.***

DATE: 86.

AUTHOR: Dik, David W.

INSTITUTION: The Union for Experimenting Colleges and Universities (0557; Ph.D.).

ANNOTATION: This qualitative study addresses the question, "How will electronic information/communication technologies influence the future of adult nonformal education?" As rapid change is taking place in electronic technologies, the reexamination of methods of organizational change, educational methodology, delivery systems, and potential adult audiences become important considerations and are analyzed in the study. The history of the printing press and television is examined as representative of major technological introductions with resulting social and educational change. Exploratory and descriptive research methods are then utilized to examine adult education and electronic technology from a contemporary vantage point. Finally, historical and contemporary components of the relation of technology to adult audiences serve as a basis for inventing the future of nonformal adult education in the next century. The advent of earlier technologies, the printing press, and television affected society and education by enhancing the capacity to store, retrieve, preserve, and transmit information. Electronic instructional technologies have become a new influence on education with the expanded potential to do the same. Each electronic instructional technology has the potential to MULTIPLY, AMPLIFY, AND DUPLICATE information, knowledge, and decision-making aids. Electronic technologies have also reduced two of the major barriers to information and educational access—time and distance. However, they have not eliminated financial barriers. Instructional technologies having potential for nonformal adult education programs studied are: videocassettes, interactive video, artificial intelligence (expert systems, natural languages, robots), and electronic networks (teleconferencing, electronic mail, bulletin boards, and data bases). Because of the capacities and capabilities of these technologies, educating in the information age will require different organizational structures and leadership, new adult educator skills, and an awareness of emerging educational needs of adult audiences. Educational information/communications technologies will require adult educational organizations to give greater consideration to the issues of equity, finances, dehumanization, social impact, adult education, work, instructional technologies, and long-range planning.

FORMAT: Dissertation, 267p.

AVAILABILITY: For a full-text copy of this dissertation order ADG86-26779 from University Microfilms International, 300 North Zeeb Road, Ann Arbor, Michigan 48106, (800) 521-3042. [1]

TITLE: ***Incorporating Affective Skills into Performance-based Vocational Education and Industrial Training.***

DATE: 87.

AUTHOR: Pucel, David J.

ANNOTATION: Although those psychomotor procedures that were the basic components of occupations of the industrial age still need to be taught, there is a growing need to teach the cognitive behaviors and affective behaviors associated with information processing and service-related occupations. The techniques that have worked well to teach psychomotor behaviors can and should be modified to embrace the teaching of occupationally related cognitive and affective behaviors. Solid competency-based procedures can be adapted to teach affective behaviors. First, job-related affective behaviors that are required for a person to succeed in the occupation can be identified through a job analysis. Second, the specific content that an instructor must teach for a learner to acquire those behaviors must be identified through behavior detailing. Third, how the behavior will be taught must be planned. The Performance-based Instructional Design System contains a lesson structuring (planning) system that is equally applicable to the psychomotor and affective behaviors. This system is explained, and sample charts, checklists, and other illustrative materials are included.

FORMAT: Conference Paper; Information Analyses; 30p.

AVAILABILITY: For a microfiche copy of this document order ED290855 from FEIS.

TITLE: **"Increasing the Bottom Line Results of Training."**

AUTHOR: Zigon, Jack.

JOURNAL: *Performance and Instruction;* v23 n2 p18-20 Mar 1984.

ANNOTATION: Describes a collection of techniques used to increase use of skills learned in a training program for the staff of a motor freight common carrier company. Briefly summarizes the nature of the training program, its rationale, target population, and content and delivery methods. Also summarizes the training program's effects on employee performance. (MBR).

TITLE: **"Industry Goes to School."**

AUTHOR: Karabatsos, Nancy A.

JOURNAL: *Quality;* v24 n1 p57-60 Jan 1985.

ANNOTATION: An increasing number of companies are turning to local universities and community colleges for employee training/retraining and the recruitment of graduates. At Chattanooga State Technical Community College (Chattanooga, Tennessee) the $3.3-million

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Production Center, opened in 1984, is designed to help develop a skilled local work force. The center includes (1) a totally automated flexible manufacturing cell with 3 five-axis, general-purpose robots; (2) a vertical machining center with 24-tool magazine; (3) a turning center with numerical control; (4) a computer-controlled nonsynchronous conveyor; (5) nine other robots; (6) an intelligent vision system; and (7) interactive graphics units for computer-aided design and manufacturing. A committee of local industry leaders helped design the curriculum and asked specifically for public speaking and report writing to be included because the graduates of the center will likely be the only people to fully know control systems automation. The center also conducts training courses to upgrade local employees' skills. Diagram.

TITLE: ***Influences on Higher Education in the Knowable Future.***

DATE: 87.

AUTHOR: Lorenzo, Albert L.

ANNOTATION: An overview is provided of the future impacts on the postsecondary educational delivery system triggered by projected changes in demographics, technology, the economy, and lifestyles. To help institutions prepare for and adapt to future changes, the paper presents the following projections: (1) postsecondary education will be evaluated more frequently in terms of its ability to provide marketable skills; (2) the demand for nontraditional learning will increase; (3) more courses will have to be offered at the times and locations preferred by students; (4) the average age of the postsecondary learner will increase, reducing student mobility; (5) new "education return" programs will be designed as fewer associate and bachelor degree programs will provide lifelong employment guarantees; (6) the value of liberal arts courses for work-force retention and advancement will be recognized; (7) students will seek course offerings based on institutional access and convenience, requiring a reduction in transfer barriers; (8) institutional costs will force colleges to narrow their focus and build new programs cooperatively; (9) diminishing student pools will lead to new courses to meet the short-term needs of the nontraditional college student; (10) institutions will emphasize image enhancement in order to increase the competitive opportunities of their graduates and secure greater public support; (11) employers will encourage more employees to undertake college-level work through tuition payment plans; (12) public pressure will force institutions to demonstrate program quality and relevance; (13) curriculum development and instructional delivery will require separate specializations; and (14) educational leadership systems will have to respond to organizational changes. (PAA).

FORMAT: Conference Paper; Position Paper; 11p.

AVAILABILITY: For a microfiche copy of this document order ED282602 from FEIS.

TITLE: ***Introducing Individualization with Computer-managed Learning: An Example from Adult Basic Education.***

DATE: 85.

AUTHOR: Fahy, Patrick J.

ANNOTATION: This report presents findings from four pilot projects introducing computer-based individualization in adult basic education programming. The report includes a description of the andragogic and developmental-studies underpinnings supporting the principal project goals of responsiveness in the learning environment and choices for students. Elements of the report are the following: (1) educational crises promoting widespread criticism of learning and teaching at all educational levels; (2) andragogy as a philosophy of adult learning; (3) curriculum design principles from the field of developmental studies; (4) description of the learning environment in which the projects occurred, of the projects themselves, and of the PLATO Learning Management (PLM) computer-management facility; (5) findings of the projects for students and participating staff; (6) broad implications of the projects (i.e., what responsiveness and student choice mean in educational practice); and (7) discussion of social and workplace trends forcing adult education to recognize the need for student self-direction and self-pacing and, in so doing, to make greater future use of technology. Fifty-three references are cited. (Author/KC)

FORMAT: Research Report, 28p.

AVAILABILITY: For a microfiche copy of this document order ED260258 from FEIS.

TITLE: ***An Investigation of the Impact of Learning Theory on Training and Conditions of Training in the Corporate Environment.***

DATE: 83.

AUTHOR: Collins-Bondon, Carolyn Ruth.

INSTITUTION: Western Michigan University (0257; Ed.D.).

ANNOTATION: The purpose of this study was to determine the extent to which knowledge and use of learning theory are reflected in corporate training programs. The literature review was concentrated in three areas, namely: (1) nature and quality of training programs, (2) theories of learning, and (3) training programs and learning theory. That literature indicated that references to learning during training generally dealt with logistics, or teaching and instructional methods (lecture, self-instruction, or on-the-job training). The investigator posited that training specialists need to be attuned to trainee needs and to provide optimum opportunities for addressing those needs. Instead of the hypotheses originally proposed, a decision was made to use a research question, which was "To what extent are knowledge and use of learning theory reflected in the nature of training programs?" The writer proceeded to develop an interview questionnaire and an analysis checklist instrument based on principles of adult learning, or "andragogy." Data were gathered from a telephone survey of representatives of 16 "Fortune 500" companies located throughout the United States. Those representatives provided responses to specifics of how the aforementioned components are facilitated within corporate training environments. The analysis provided clear evidence that in the 16 companies investigated, trainee participation varied from "almost none" to "modest" in the assessment, planning, implementation and delivery, and evaluation of training programs. Of those four elements of training programs, planning was the one in which there was least trainee participation reported. The study seemed to indicate that even the companies that reported greatest trainee participation could hardly be classed as trainee oriented. However, several of the companies, based on the writer's judgment, the interview transcripts, the profile of the "typical" training program, and in-depth descriptions of the 16 company training programs, could be classed as definitely organization oriented. A major overall conclusion was that all of the companies need to be cognizant of, and demonstrate more use of, andragogical principles in their training programs.

FORMAT: Dissertation, 126p.

AVAILABILITY: For a full-text copy of this dissertation order ADG84-00473 from University Microfilms International, 300 North Zeeb Road, Ann Arbor, Michigan 48106, (800) 521-3042.[2]

TITLE: **"The Invisible Trainer."**

AUTHOR: Berdiansky, H.

JOURNAL: *Training and Development Journal*; v39 n3 p60-62 March 1985.

ANNOTATION: Telecommunication training has proven to be less expensive than traditional training. Research to measure the effectiveness compared with costs of telecommunication training was conducted by the North Carolina Office of Day Care Services. A traditional training program and a telecommunications training program were designed with identical content and given to two groups of matched trainees. The outcome was evaluated on a pretest and posttest basis. Table One shows a cost comparison of the development of the course, with the teleconferencing costs being slightly higher. Table Two gives the trainer and travel costs for traditional training. Table Three compares the delivery costs of both training types and indicates that the distance determined the savings, if any. Table Four gives the results of pretest and posttest scores by training content, indicating no significant difference based on method. Suggestions to make telecommunication training more effective are given.[3]

TITLE: ***Issues in Television-centered Instruction.***

DATE: 81.

AUTHOR: Richardson, Penelope L.

ANNOTATION: Current research on the adult learner and on instruction through media has grave flaws, and reviews of research in five areas are needed to assist instructional developers and adopters in making wise decisions. These include a critical analysis of existing telecourse packages, as well as reviews of research on the motivation of various subgroups of adults and the recruitment and retention strategies which are effective for them; instructional strategies effective for different subgroups of adult learners; the logistics and costs of alternative delivery technologies and the audiences they are likely to reach; and technical assistance and training needed by new adopters. Forty-three references are listed. (Author/LLS)

FORMAT: Conference Paper; Information Analyses; 28p.

AVAILABILITY: For a microfiche copy of this document order ED205217 from FEIS.

TITLE: **"It's Time to Stop Training . . . and Start Facilitating."**

AUTHOR: Crapo, Raymond F.

JOURNAL: *Public Personnel Management*; v15 n4 p443-49 Win 1986.

ANNOTATION: The author states that agencies must switch from pedagogical methodology to an andragogically based training operation. This switch will require a major re-education of training staff, but he argues that it is only through adult learning techniques that key personnel will become involved in development programs. (Author/CH)

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TITLE: ***Lifelong Learning Manual: Training for Effective Education in Organizations.***

DATE: 82.

AUTHOR: Frith, Michael; Reed, Horace B.; eds.
DEVELOPER: Department of Education, Washington, DC.

ANNOTATION: This manual is designed to provide trainers with detailed information on designing and implementing workshops concerning lifelong learning. The handbook is intended for trainers working as educational, staff-development, and organizational development consultants in such organizations as human service agencies, business and industry, self-help groups, libraries and museums, religious institutions, and continuing education institutions. The manual first provides a brief discussion of the lifelong learning concept. The second section contains a description of the Lifelong Learning Scale Instrument, and this is followed by an explanation of the basic design of the workshop modules contained in this guide. Each module is aimed at objectives that differ as to situational and target population contexts. These workshop modules include activities for single-organization target populations; for cross-agency target groups; for interagency conflict management; and for research and teaching usage. A final section provides trainers with an in-depth explanation of the descriptors used at the two ends of the formal/nonformal continuum of the 11 variables of the Lifelong Learning Scale. A bibliography of relevant sources and materials used in the modules is appended. (KC)

FORMAT: Teaching Guide, 51p.

AVAILABILITY: For a microfiche copy of this document order ED260176 from FEIS.

TITLE: ***Making the Transition in Technology, Training, and Education.***

DATE: 85.

AUTHOR: Lynch, Edward; And Others.

ANNOTATION: Macomb Community College (MCC) in Warren, Michigan, has a commitment to support business and industrial development, consequent employee retraining, and program design. In addition to helping workers in their retraining and/or relocation, the college provides systematic support in the development of basic skills. Occupational programs have tended to be vertical in design; that is, they provided students with as much depth as possible in a limited area. New faculty coming from industry show greater interest and willingness to reevaluate program composition and consider a horizontal approach; that is, a balanced selection across the technology area. Other factors bringing a shift in thinking about horizontal programming are changes in approaches to labor relations and work design in local industry. A formal long-range plan for the Technical Division at MCC is being developed which will establish several key and strategic concepts and considerations. This planning approach should help the college deal with change. To help the college adapt to external forces driving the changes, Macomb is formalizing a participative and formal process that openly deals with issues and seeks commitment from faculty and administration alike. Macomb's effort has included development of an advisory committee, identification of concerns with which the Technical Division must deal in setting a course of action for the future; involvement of faculty as leaders in the leadership process; and encouragement of faculty participation in the change process. (YLB)

FORMAT: Conference Paper; Project Description; 24p.

AVAILABILITY: For a microfiche copy of this document order ED265289 from FEIS.

TITLE: ***Manufacturing Management Systems: User Training.***

DATE: 82.

AUTHOR: Hunt, C. L.

ANNOTATION: The Production Control Training Program is a competency-based management training program currently in operation at the Defense Systems Division of Honeywell, Incorporated. Designed with the needs of the adult learner in mind, the program involves pretests and meetings between supervisors and individual staff members to identify individualized training profiles. This assessment process has resulted in a program of workshops that is responsive to trainees' individual training needs, schedule constraints, and learning styles. As a result of the training program, the following improvements have been noted: paperwork reductions, reductions in over-ordered material, improved record accuracy, and improved scheduling. These results have been achieved with a training program that costs 30 percent to 40 percent less than would a more traditional program. (MN).

FORMAT: Conference Paper; Project Description; 14p.

AVAILABILITY: For a microfiche copy of this document order ED221740 from FEIS.

TITLE: **"Meeting the Challenge of the New American Unemployment."**

AUTHOR: Crossland, Ronald J.; Milander, Henry M.

JOURNAL: *Community Services Catalyst;* v16 n3 p11–13 Sum 1986.

ANNOTATION: Predicts changes in work-force supply and demand. Looks at ways new technological delivery systems can be used to enhance lifelong learning and improve adult retraining/education. Reviews the Commission on Higher Education and the Adult Learner's recommendations, and projects ways technology will be used in innovative programs for adults. (DMM)

TITLE: ***Methodological Innovations for Training and Development: A New and Better Way.***

DATE: 87.

AUTHOR: Niehoff, Marilee S.; Romans, M. Jay.

ANNOTATION: Research indicates that conventional training activities are largely ineffective in bringing about behavior change in such dimensions as leadership, initiative, planning and organization, judgment, independence, and delegation. The Niehoff method is a training and development method that was designed to respond to the adult mode of learning. It is based on the premise that learners do better with active participation, meaningful content, constructive immediate feedback, and small-group discussion. The method combines the assessment center, case study, and small-group discussion modes of training. The Niehoff training program consists of five custom case studies developed from data collected before the training session and reflecting real-world situations and problems that have been encountered by the participants. Because the trainees are given an opportunity to work together and find real solutions, there is a much greater likelihood that they will transfer their training to the job. Training session participants are divided into five to seven round-table groups, each containing five individuals. Participants are given 30 minutes to prepare their presentations; cases are presented in about 15 minutes each, with 5 minutes between each presentation to allow participants to complete their feedback sheets. A concluding round-robin feedback and summary takes 20–40 minutes. Pilot programs using the method have been successful. (MN).

FORMAT: Conference Paper; Research Report; 10p.

AVAILABILITY: For a microfiche copy of this document order ED281997 from FEIS.

TITLE: **"Metropolitan Life: Let the Computer Do the Teaching."**

AUTHOR: Feuer, D.

JOURNAL: *Training;* v21 n11 p99–102 Nov 1984.

ANNOTATION: Metropolitan Life Insurance Co. computerized its operations to become cost-effective and to provide faster and more comprehensive service to policyholders and potential customers. In order to offset the high cost of training its employees across the country, the company utilized a program where the computer itself was the primary trainer. Human trainers played only an introductory role in training, accounting for 15 percent to 20 percent of the total program. Included is a chart breaking down the training expenditures and the amount of training received by each kind of employee. A photograph of a training session is also included. [4]

TITLE: **"Mining Good Staff Development Ideas in Business."**

AUTHOR: Wood, Fred H.

JOURNAL: *Journal of Staff Development;* v5 n1 p69–80 May 1984.

ANNOTATION: The training and development programs of the NCR Corporation offer useful ideas for educators interested in increasing effectiveness of inservice teacher education. Implications for use of NCR's personnel training programs as a basis for staff development are offered. (DF).

TITLE: **Model Building in Training.** ***Collaboration in Adult Learning.***

DATE: 80.

DEVELOPER: Department of Education (DHHS), Washington, DC. Teacher Corps.

ANNOTATION: This is the first of three reports geared to educator training and which encompass alternative approaches to collaboration and expert input, as well as a range of diverse topics related to adult learning. This particular document is a collection of papers presenting alternative models for collaboration that relate to various aspects of adult learning and training. Model 1 is based on a meeting of experts in higher education who were brought together to identify critical gaps in our knowledge and understanding of adult learning that need to be addressed by educator-trainers. The training connection between the business sector and institutions of higher education is addressed in Model 2 by discussing the need for clarifying the interpretations of training as a discipline and as a profession and by presenting a cooperative training model that attempts to capitalize on the interests and expertise of both business and higher education. In Model 3, the mission of schools of education is expanded to encompass the world beyond schooling by presenting an organizational model that brings together various academic units to address the training needs of workers. Using a medium-sized, private institution of higher education as a prototype, Model 4 reveals the extent of university faculty and administrator involvement and interest in adult learning-related endeavors and subsequent collaboration with colleagues. Finally, Model 5 presents another means of collaboration among experts involving the development of a position paper by each participating professional that addresses a common topic. (KC).

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FORMAT: Administrative Material; Information Analyses; 112p.

AVAILABILITY: For a microfiche copy of this document order ED198367 from FEIS.

TITLE: **Model Building in Training. *Symposium on Adult Learning Potential: An Agenda for the Future.***

DATE: 80.

DEVELOPER: Department of Education (DHHS), Washington, DC Teacher Corps.

ANNOTATION: This is the second of a series of three reports geared to educator training and which encompass alternative approaches to collaboration and expert input, as well as a range of diverse topics related to adult learning. This particular document describes a symposium conducted by the Adult Learning Potential Institute in June, 1980. For the symposium, a diverse group of nine selected participants were asked to respond to a number of critical questions concerning adult learning and training in the future. After an orientation by Winifred Warnat, in which she invites participants to be creative and daring, the first part of the report contains selected comments from group discussions. The second part of the report contains short papers given by the nine participants on the following issues: learning versus information processing; meeting the stressful future; leisure and adult learning; the necessity of changing old patterns to meet adult learning needs; technology, folk heroes, and adult learning; dependency and authority as blocks to adult learning; the future of the education business; adult learning potential; and new models of learning. A short selection of random comments made during the symposium and a list of participants conclude the report. (KC).

FORMAT: Administrative Material; Conference Proceedings; 63p.

AVAILABILITY: For a microfiche copy of this document order ED198368 from FEIS.

TITLE: **Model Building in Training. *Toward the Twenty-first Century: Critical Issues in Adult Learning.***

DATE: 80.

DEVELOPER: Department of Education (DHHS), Washington, DC Teacher Corps.

ANNOTATION: This is the third of a series of three reports geared to educator training and which encompass alternative approaches to collaboration and expert input, as well as a range of diverse topics related to adult learning. This particular document begins with a forecast of what might occur over the next twenty years in adult learning. The remaining five sections present critical issues that have implications for adult learning and training in the future. The first section focuses on the critical issue of unemployment, in which the "humanness factor" is presented as a major void in resolving the dilemmas faced by unemployed workers; next, it provides a model that begins to address the dilemmas through the humanness factor. The next section acknowledges aging as a critical issue that needs to be addressed through training practices, demonstrating a method by using the family as a model of training. Leisure is the critical issue focused upon in the third section, which discusses the importance of educators needing to understand the profound impact that increased leisure will have on society in the future; four training models are presented. The fourth critical issue identified is women, with special emphasis placed on the potential and emerging power of middle-aged women in molding our culture; this discussion is followed by a comprehensive training agenda. Finally, a leadership training model is set forth for addressing the fifth critical issue, community education.

FORMAT: Information Analyses; 117p.

AVAILABILITY: For a microfiche copy of this document order ED198369 from FEIS.

TITLE: ***New Directions and Trends in Industrial Training and Their Implications for Vocational Education Programs.***

DATE: 86.

AUTHOR: Ashley, William L.; And Others.

ANNOTATION: A basic position of industry is that it picks up where schools leave off. Training policy within industry is diverse in theory and practice. Companies vary in their approach to training, ranging from highly informal to highly formal. The many new trends in industrial training may be analyzed in four dimensions: in-house education programs, educational and training facilities, degree-granting institutions, and satellite universities. Most employers responding to a National Center for Research in Vocational Education survey on trends in industrial training state that technology dictates the initial outline of training needs. Training was found to occur both in-house and at the customer's site. Popular training trends included teletraining, computer-based training, creative uses of videodiscs, touch-screen data entry techniques, increased use of adult education techniques, interpersonal and similar skills training, and small-group training. Vocational training programs for skilled workers must keep pace with the constantly changing needs of industry, help students develop preemployment qualifications, avoid adopting or clinging to provincial attitudes and practices that are inconsistent with the realities affecting firms hiring vocational graduates, and prepare workers to assume more responsibility for updating themselves as new technological developments and practices affect their occupations. (MN).

FORMAT: Information Analyses; 11p.

AVAILABILITY: For a microfiche copy of this document order ED272675 from FEIS.

TITLE: ***New Directions for Training Technology.***

DATE: 81.

AUTHOR: Fletcher, J. D.

ANNOTATION: Lower manpower quality and increasingly sophisticated equipment are creating training problems for both industry and the military. The training technology demanded by this situation must be delivered to and available at the job site, must be designed to motivate independent use by students rather than to encourage teacher acceptance, must be relevant to the job needs, and must be intelligent enough to respond usefully to student needs. Types of new training technologies currently being considered or developed include interactive movies, surrogate travel, microtravel, virtual team trainers, automated authoring of computerized training materials, optimized instruction through efficient techniques for fostering the memorization of necessary information, low cost portable simulators, and the use of electronic libraries. Since the goal of all these approaches is to improve system performance, a novel concept of training technology has been developed. This concept involves recognizing that people are part of the systems being affected by the training; that training research should aim at improved system performance rather than at improved training; that training involves creative learning rather than passive information transfer; and that training, manpower, personnel, hardware, and other

requirements of the system are interdependent in their effects on system performance. (Author/PGD)

FORMAT: Conference Paper; Position Paper; 9p.

AVAILABILITY: For a microfiche copy of this document order ED220947 from FEIS.

TITLE: **"New Directions in Corporate Training."**

DATE: 87.

AUTHOR: Conover, Donald K.

JOURNAL: *Vocational Education Journal*; v62 n3 p23–25 Apr 1987.

ANNOTATION: The pace of technological change is widening the gap between public sector vocational education and in-house corporate training. However, corporate trainers can learn the fundamental skills of teaching from vocational educators, who in turn can benefit from industry's progress in specialized course analysis, design, and development. (SK)

TITLE: **"A New Look at Learner-controlled Instruction."**

DATE: 82.

AUTHOR: Cox, John H.

JOURNAL: *Training and Development Journal*; v36 n3 p90–94 Mar 1982.

ANNOTATION: Describes a strategy-based learner-controlled instruction model. Strategies involve predetermining training results, recognizing the prior experiences of employees, using the real work world in training, evaluating actual performance, providing immediate and continuous feedback to employees, self-paced training, and self-managed training. (CT)

TITLE: **"New Technologies: New Training."**

DATE: 85.

AUTHOR: Zanardelli, Wayne R.

JOURNAL: *Journal of Career Development*; v11 n3 p181–89 Mar 1985.

ANNOTATION: Technology is redefining job functions, management functions, and people-managing skills. The educational community must reevaluate traditional methodologies and delivery systems. Changes must occur in school-industry cooperation, teaching methods, and student evaluation (performance testing and problem solving, credit for competence rather than course completion). (CT).

TITLE: ***New Technology Demands New Kinds of Training.***

DATE: 84.

AUTHOR: Zanardelli, Wayne R.

ANNOTATION: The changes brought on by modern technology and the information explosion it supports are revolutionary. The manufacturing industry has always had a commitment to new processes and new technology. Investment in improving productivity through the application of technology is, however, new to the office. Provision of training has become a major issue for which companies are especially unprepared. Filling the enormous hiring requirements created by the growth of technology, especially with the rapidly changing demographics of the work force, is one of the real challenges of the future. Much of the special training required will be done at proprietary business and technical schools that have a long and successful record of responding quickly to demands of the local employment scene, implementing new technology quickly, and producing highly qualified graduates in the shortest amount of time possible. Such schools are characterized by a deep concern for student needs and success, a teaching staff with industry experience, individualized placement, and emphasis on hands-on training; their graduates need only a short on-the-job learning period. Students are attracted by flexibility in programs, courses, and starting times. Private business schools are in a good position to work with industry to provide qualified personnel. (YLB).

FORMAT: Conference Paper; Position Paper; 11p.

AVAILABILITY: For a microfiche copy of this document order ED252736 from FEIS.

TITLE: **"1995 (A Scenario for Personnel Management Retraining in the Future)."**

AUTHOR: Kee, Y. T.

JOURNAL: *Business Quarterly* (Canada); v50 n3 p22–29 Autumn 1985.

ANNOTATION: Computer technology and computer programs have forced people in the industrialized nations to rethink the way they manage their business and personal affairs. The computer relieves employees of routine, tedious tasks that stifle their creativity. As computers replace people in the execution of routine work, organizations should retrain their employees for more creative tasks and for involvement in the company's business. Retraining should include not only technology-affected job levels but all levels of management. Computer/video technology, a new interactive technology, is an effective teaching method for this retraining. While it is best used for singular viewing, it adapts well to small controlled groups. With modifications, it can also be used for larger groups. There are several advantages to this type of program: (1) instructor services are paid only once, (2) the program is consistently presented as approved, and (3) revisions are easily made.

TITLE: **"One Way to Study Staff Training in Business and Industry."**

DATE: 84.

AUTHOR: Wood, Fred H.

JOURNAL: *Journal of Staff Development*; v5 n1 p98–103 May 1984.

ANNOTATION: Suggestions on how to examine educational programs in business and relate findings from such learning experiences to the school environment are presented in this article. (DF).

TITLE: ***OPTIONS: Expanding Educational Services for Adults. The Educator's Guide.***

DATE: 87.

AUTHOR: Liming, Roxi A.; Warmbrod, Catharine A.

DEVELOPER: National Center for Research in Vocational Education, The Ohio State University, Columbus.

ANNOTATION: This guide is intended to acquaint postsecondary-level administrators, instructors, and counselors with the background, philosophy, components, structure, and use of the *OPTIONS* program. The first section discusses recent and likely demographic changes that will affect postsecondary education and the work force. It explains the role of the *OPTIONS* program as a way of preparing workers for rewarding employment in a labor market subject to rapid, unpredictable changes caused by rapid technological advancement.

Linking with employers and developing a curriculum in response to change are examined next. Adult career guidance, entrepreneurship education, and literacy enhancement for adults are covered in a section on special services for adult learners. Case studies of programs serving adults and guidelines for using *OPTIONS* are provided. A 6-page list of documents that have served as source materials in the development of the *OPTIONS* program is included along with a 17-page list of related readings dealing with linking with employers, developing curricula, and providing special services to adult learners. (MN)

FORMAT: Teaching Guide, 54p.

AVAILABILITY: For a microfiche copy of this document order ED288985 from FEIS.

TITLE: ***Planning for Improved Linkages.***

DATE: 83.

AUTHOR: Barnard, Wynette S.

ANNOTATION: The need for employment training delivery systems to work cooperatively in preparing a trained work force is described. A brief review of the literature lists seven major employment training delivery systems which operate independently of each other, discusses the problems associated with their lack of cooperation, and argues that cooperation among these systems is essential at this time. The delivery systems listed are: the military, the Job Training Partnership Act, business and industry, apprenticeship, universities, public vocational education, and proprietary or independent schools. Five major principles which should be incorporated into cooperative programs are presented along with examples of procedures for achieving each principle. The principles, which were identified by a questionnaire survey of representatives of the seven major delivery systems, are: (1) reduce competition and encourage cooperation among the providers of employment training; (2) ensure the quality and relevance of employment training; (3) ensure that employment training programs are accessible and available; (4) increase the efficiency of employment training; and (5) ensure ongoing planning and evaluation of the employment training system and its components. (DC).

FORMAT: Conference Paper; Position Paper; 9p.

AVAILABILITY: For a microfiche copy of this document order ED241809 from FEIS.

TITLE: ***Preparing for High Technology: A Guide for Community Colleges.***

DATE: 82.

AUTHOR: Long, James P.; Warmbrod, Catharine P.

DEVELOPER: National Center for Research in Vocational Education, The Ohio State University, Columbus.

ANNOTATION: So that postsecondary institutions can meet the training needs of business and industry, this guide has been developed to help colleges increase and improve their active participation in assisting businesses and industries to use advanced technology. It provides suggestions for keeping faculty up-to-date, acquiring the latest equipment, and providing programs for training new workers, as well as upgrading present workers. The guide also suggests means of using new curricula and delivery systems and modifying existing programs. The guide presents strategies and recommendations for rapid and appropriate responses to new technological development, based on data gathered in the Technology Adaptation Project. The strategies and recommendations for successful practices are divided into four areas: program planning, financing and equipping, staff development and recruitment, and curricula development and delivery systems. A summary of the Technology Adaptation Project is included in the guide. (KC).

FORMAT: Administrative Material, 23p.

AVAILABILITY: For a microfiche copy of this document order ED216169 from FEIS.

TITLE: **"Professional Retraining: Meeting the Technological Challenge."**

AUTHOR: Morano, R. A.; Deets, N.

JOURNAL: *Training and Development Journal;* v39 n5 p99–101 May 1985.

ANNOTATION: Xerox Reprographics Business Group struggled with the problem of surplus high-tech jobs and a lack of skilled people to fill them. An expensive program of retraining was utilized to solve the problem. The program was designed to meet the exact requirements of Xerox. It was found that retraining with customized courses was an effective means of solving the skills imbalance problem. A diagram is provided which shows a training model for electronic/computer and engineering/computer sciences. [5]

TITLE: **"Promoting Adult Learning."**

AUTHOR: Stuart, R. R.

JOURNAL: *Programmed Learning and Educational Technology;* v23 n3 p253–58 Aug 1986.

ANNOTATION: Discusses facilitative teaching, roles and relationships of teachers and students, and factors in the teaching environment that facilitate learning. Characteristics of facilitative teachers and factors that increase and decrease relevance of facilitation are outlined. Implications of facilitative teaching for training organizations, instructors, and students are summarized. (MBR).

TITLE: ***Satellite Telecommunications and Their Potential for Vocational Education.***

DATE: 84.

AUTHOR: Grieve, Shelley; Singer, Norman M.

DEVELOPER: National Center for Research in Vocational Education, The Ohio State University, Columbus.

ANNOTATION: This report summarizes the findings and implications of a study that examined the potential for expanded use of satellite-related telecommunications in vocational education, focusing on the short-term potential of satellites in the areas of instruction, training, administration, and governance. The investigation found that a variety of education-oriented experiments with satellite telecommunications have been conducted since the 1960s. These have shown that satellite systems require strong commitment among sponsors and participants and clear incentives for use, including a careful match of technology to educational needs. Today, state educational telecommunications networks are found to be at varying developmental stages, with Alaska's system using satellites pervasively. With vocational education's need to keep current and reach widely dispersed audiences and new clientele, satellite applications are envisioned as beneficial in a number of ways, with great potential for instruction, training, and professional development. Increasingly, video teleconferencing and other programs such as telecourses afford interactivity, so that training and instructional purposes can be met more readily. A num-

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ber of specialized satellite-based projects currently underway should be monitored by vocational educators for their adaptation in program improvement work. Before any satellite-based solutions to vocational educational needs can be implemented, however, issues related to software, "peopleware," and hardware must be confronted, and more intense study must be made of the needs of potential users. The appendix includes several substantive reports by technical experts, telecommunications providers, and educational "adopters." A glossary and extensive references complete the document. (KC).

FORMAT: Research Report, 220p.

AVAILABILITY: For a microfiche copy of this document order ED246232 from FEIS.

TITLE: **"Short-term Training: A Means of Providing Community Colleges and Students with Long-term Benefits."**

AUTHOR: Terry, Ardell.

JOURNAL: *Community Services Catalyst;* v14 n1 p22-24 Win 1984.

ANNOTATION: Reviews the benefits of self-paced, short-term training programs for community colleges and for adult learners. Identifies the characteristics of competency-based education that should be included in the short-term training. Suggests scheduling and registration/tracking possibilities and underscores the importance of close interaction between faculty and students. (DMM).

TITLE: ***Short-term Training—Where the Action Is.***

DATE: 82.

AUTHOR: Moore, George R.

ANNOTATION: In order to address major permanent changes in the economic structure and work force of its community, Chemeketa Community College (CCC) in Oregon has made a commitment to initiate as many short-term training programs as its resources permit. Short-term training, which takes less time than regular one-year certificate or two-year associate degree programs, focuses on the acquisition of specific technical skills with minimum coursework in related subjects or general education. Beginning in August 1982, CCC began planning two separate short-term training projects in cooperation with the Mid-Willamette Valley Consortium. The Group Occupational Training Project (GOTP) offers short-term training in industrial skills training/mobile home construction, word processing, and typing/transcribing. The Classroom Training Project (CTP) trains dislocated community workers in the areas of electronic technology, computer operations, microprocessor repair, and computer-assisted drafting/graphics. These programs are open-entry/open-exit and competency-based, using course modules based on industry standards and validated through testing programs. Experience so far in planning and implementing these programs has provided insight into (1) time, philosophical, and attitudinal constraints on initiating new programs; (2) strategies for maintaining consistent and positive relations between the college and consortium, and otherwise promoting program and student success; and (3) implications for CCC's future role in short-term training. (DAN).

FORMAT: Position Paper, 9p.

AVAILABILITY: For a microfiche copy of this document order ED226789 from FEIS.

TITLE: **"Sponsored Experiential Programs—Learning by Doing in the Workplace."**

AUTHOR: Macala, Joan C.

JOURNAL: *New Directions for Continuing Education,* n30 p57-70 Jun 1986.

ANNOTATION: Explores how sponsored experiential learning programs work—from the perspectives of both the facilitators and the consumers of the learning. Discusses on-campus programs, off-campus centers, the intern position, administering adult internship programs—from the sponsor's perspective and from the company's perspective—and internships with current employers. (CT).

NOTE: Theme issue: "Experiential and Simulation Techniques for Teaching Adults."

TITLE: **"Staff Development in Schools and Industry: Perceptions of an Individual Who Has Been in Both."**

AUTHOR: Pestello, Roxy J.

JOURNAL: *Journal of Staff Development;* v5 n1 p90-97 May 1984.

ANNOTATION: A former educator who currently holds a management position in private industry relates perceptions of the differences between programs in education and programs in business. Clients, content, and training processes of both settings are explored. (DF).

TITLE: ***The Structure of Adult Learning, Education, and Training Opportunity in the United States. Worker Education and Training Policies Project.***

DATE: 80.

AUTHOR: Fraser, Bryna Shore.

DEVELOPER: National Institute for Work and Learning, Washington, DC.

ANNOTATION: Increasing numbers of American adults are engaged in many types of learning activities; a significant part of these learning activities are organized and structured. Record keeping about institutionalized adult learning is often scanty, however, or even nonexistent. As the social goal of a "learning society" has been articulated, it has become increasingly important to gain a firmer grasp of the whole of the organized adult learning structure. This monograph, aimed at those professionally engaged in education and training matters and at others concerned to know more about what the structure of organized learning opportunity for adults includes, describes the whole of the structure of organized adult learning opportunities. It includes a description of the education and training programs of private industry and business; all of post-secondary education; federal, state, and local government; the cooperative extension service; correspondence instruction; etc. Program objectives, expenditures, and enrollment data are provided for all of these programs. Recommendations for future action are given. (KC).

FORMAT: Information Analyses; Position Paper; 87p.

AVAILABILITY: For a microfiche copy of this document order ED200723 from FEIS.

TITLE: **"A Study of Cooperation/Collaboration among Employment Training Systems."**

AUTHOR: Barnard, Wynette S.; And Others.

JOURNAL: *Journal of Vocational Education Research,* v10 n3 p13-34 Sum 1985.

ANNOTATION: This study was conducted to determine the current status of existing and potential cooperation and collaboration efforts among major employment training delivery systems. The study involved a survey of representatives from eight major delivery systems of employment training. Data analysis supplied information about each delivery system and provided a means for drawing comparisons among the delivery systems. (Author).

TITLE: **"Success Story: Computer Managed Instruction Development."**

AUTHOR: Seyfer, Charline; Russell, James D.

JOURNAL: *Performance and Instruction;* v25 n9 p5–8 Nov 1986.

ANNOTATION: Describes Mountain Bell's Computer-managed Instruction Development Project: how the computer is being used to develop any type of instruction, to assist with management of course development projects, and to direct training of course developers; project field-trial goals and results; project benefits; and future project orientation. (MBR).

TITLE: ***A Systematic Approach to Improving the Training Process in CIDS.***

DATE: 81.

DEVELOPER: National Vocational Guidance Association, Washington, DC.

ANNOTATION: This training journal, a product of the Career Information Delivery Systems (CIDS) Project, is designed to provide trainers with the necessary training delivery skills needed to create effective adult learning experiences. Addressed in the individual units of the journal are the following topics: basic elements of training experiences (content and process observers); change agentry (five major orientations toward change); training program design and evaluation (issues in defining a training need, the identification of training needs, and a methods primer); and conducting training (a training session checklist and five major steps involved in conducting training). Each unit contains a central objective, terminal objectives, instructional text, and exercises. (MN).

FORMAT: Conference Proceedings; Instructional Material; 75p.

AVAILABILITY: For a microfiche copy of this document order ED239099 from FEIS.

TITLE: **"Target Stores' Study: CBT Wins Again."**

JOURNAL: *Training;* v21 n11 p17, 109 Nov 1984.

ANNOTATION: Target Stores, Inc., a national retailing operation based in Minneapolis, Minnesota, conducted a study comparing computer-based training (CBT) to conventional training. Based on the results of the study, Target opted for the implementation of computer-based training because of its efficiency and effectiveness. The study compared the two methods of training in two specific applications of Target's Network Information System. The two applications were measuring the transfer of knowledge from training to on-the-job situations and the trainees' attitudes toward each training method. The courses for the training methods were developed with the help of McGraw-Hill Interactive Authoring System. [6]

TITLE: ***Training and Public Policy. Final Report.***

DATE: 87.

AUTHOR: Jacobs, James.

ANNOTATION: Developed by an advisory board of industry and education representatives to raise issues for the consideration of policymakers, community college administrators, labor leaders, and managers in Michigan, this report discusses the increasing significance of training to industry, the challenge to public education and, in particular, to community colleges posed by these training needs; and the implications for a coordinated training policy at the state level. Following introductory comments, the report examines the increasing importance of a trained work force, explains general themes appearing in training delivery systems, and discusses the impact of a heightened emphasis on training in manufacturing on the relationship between an individual firm and the public school system. Next, the report offers a rationale for Michigan community colleges playing a major role in training for new technologies, highlighting the reliance of community colleges on local support, the location of the 29 institutions in major industrial areas, and the importance of industrial training in computer-based manufacturing for the economic survival of the manufacturing base of Michigan's economy. The next section looks at issues for the educational community raised by the emphasis on training, considering the impact on mission, different constituencies to be trained, barriers to the development of Michigan community colleges as a major center of training in programmable automation technologies, and the need for an appropriate balance between public and private roles in training. Next, the report looks at training issues for the state, directing a series of recommendations at state authorities. Finally, concluding comments point to the need for improved relations between education and industry and increased business and labor involvement. (EJV)

FORMAT: Position Paper; 16p.

AVAILABILITY: For a microfiche copy of this document order ED284600 from FEIS.

TITLE: **"Training for a Changing World: Some General Reflections."**

AUTHOR: Kanawaty, George.

JOURNAL: *International Labour Review;* v124 n4 p401–09 Jul–Aug 1985.

ANNOTATION: Efforts should be geared to making better use of existing institutional capacity and expanding new forms of training, opening up more opportunities for women and young people, shifting a greater share of the responsibility to private enterprise, ensuring better coordination between the education system and labor market requirements, and making training more sensitive to sectoral needs. (Author/CT).

TITLE: **"Training Futures."**

AUTHOR: Magnus, Margaret.

JOURNAL: *Personnel Journal;* v65 n5 p60–71 May 1986.

ANNOTATION: The continuing and increasing importance of human resources makes employee training and development imperative. Trainers will have to meet the demand of new topics and areas of focus through the use of new training methods. If they are not developed during the normal educational path, basic skills such as spelling, writing, and arithmetic will have to be taught by corporate trainers, as will cultural and language skills, thinking processes, and creative problem solving. Employee orientation and reorientation are vital to the organization as well. Retraining is important to teach employees skills for different jobs within the same organization, for automated jobs, and for jobs in

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other industries. This retraining will continue for a wide range of workers. Among other things, corporate trainers will be responsible for providing cross-training and employee assistance programs. New training methods include mentoring and computer-based training. For any training to work, partnerships will have to be formed between business and educational institutions and between industrial and professional organizations. References.

TITLE: **"Training in the '90s."**

AUTHOR: Zemke, Ron.

JOURNAL: *Training;* v24 n1 p40–53 Jan 1987.

ANNOTATION: Human resources development of the future can expect a continuation of the same four factors that have influenced the past. First, the external social forces that have a dramatic impact on management practices include (1) unionization, (2) regulation, (3) litigation, (4) U.S. lifestyles, (5) consumerism, (6) the texture of the economy, and (7) global economy. The second factor, the work force, will involve (1) aging of the work force, (2) increased workplace diversity, (3) changing educational levels, (4) changing values, (5) employee expectations, (6) supervisors' views, and (7) a new sense of loyalties. Third, the organization structure affects both content and delivery of training and also is influenced by downsizing/delayering and entrepreneurship/intrapreneurship. Last, technology—both hard and soft—will continue to affect the training field. Tables. References.

TITLE: ***Training's Practices: Education and Training within the American Firm.***

DATE: 85.

AUTHOR: Zemsky, Robert; Meyerson, Martin.

DEVELOPER: National Institute of Education (ED), Washington, DC.

ANNOTATION: A study examined the training provided to workers by 20 firms across the nation. In the 12 years between 1969 and 1981, American firms increased their expenditures on employee training from $2.4 to $3.5 million, according to an analysis of data gathered by Current Population Surveys. In the same period, members of the American Society for Training and Development nearly tripled from 8,600 to 22,600. Nevertheless, the extent of firm-sponsored training appears to be related to business cycles, since a temporary decrease in such training was noted during the 1981–1983 recession. Less than one-fifth of those trainers interviewed as part of this research project had been trainers in 1972. In general, the larger a firm and the more complex its services, the more likely it is to have a management development program with a built-in strategy for developing and teaching the company culture. As corporations have changed their attitudes toward affirmative action, and as the new generation of trainers has needed to establish their profession, present-day trainers interviewed in the study tended to see themselves as part of a larger movement in which the personnel function within their firms provides an integrated approach to human resource development. An inventory for firms to use in assessing their own training programs is included in this report. (MN).

FORMAT: Research Report, 246p.

AVAILBILITY: For a microfiche copy of this document order ED265378 from FEIS.

TITLE: **"Understanding and Facilitating Adult Learning."**

AUTHOR: Brookfield, Stephen D.

JOURNAL: *School Library Media Quarterly;* v16 n2 p99–105 Win 1988.

ANNOTATION: Discusses the general nature of adult learning and six principles of effective practice for facilitating learning: (1) voluntary participation; (2) mutual respect; (3) collaborative spirit; (4) action and reflection; (5) critical reflection; and (6) self-direction. Forty-five references. (MES).

TITLE: **"Use Films in Training."**

AUTHOR: Faris, J. P.

JOURNAL: *Training and Development Journal;* v38 n5 p108–110 May 1984.

ANNOTATION: The use of films in training sessions provides the instructor with a tool to vary his or her presentation, provide relief, or reinforce an idea. Using a film effectively requires careful selection, preparation, and actual usage. The film should supplement a program, not replace an instructor. [7]

TITLE: **"What's New in Training."**

AUTHOR: Patrick, J.

JOURNAL: *Personnel Management,* p44–47 Sept 1984.

ANNOTATION: Training budgets are the first to be cut when companies are under economic pressure. The nature of the problems which training now addresses is changing just as our perspective of how trainees learn is changing. New training techniques are available which need to be used effectively. Table One compares the IPISD system of the U.S. armed services with the more educational Briggs and Wagner. Changing techniques and trends in training are discussed. Bibliography. Tables. [8]

TITLE: **"What Staff Developers Can Learn from the Private Sector: An Andragogical Approach."**

AUTHOR: Koll, Patricia J.; Hetland, Richard R.

JOURNAL: *Journal of Staff Development;* v5 n1 p81–89 May 1984.

ANNOTATION: Kimberly-Clark Corporation's approach to needs assessment, program planning, program delivery, and follow-up programs that incorporate an andragogical perspective are explored in this article. Implications for school staff developers are presented. (DF).

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